


**American University
of Beirut**

1998-1999

**Address all correspondence regarding admission to The Registrar,
American University of Beirut - Beirut, Lebanon.**



AMERICAN UNIVERSITY OF BEIRUT

1972 - 1973 CATALOGUE



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CALENDAR 1972-1973

FIRST AND SECOND SEMESTERS

Faculties of Arts and Sciences, Agricultural Sciences, Engineering and Architecture; Schools of Public Health, Nursing and Pharmacy

Applications

- March 31 (Fri.) Last day for submitting applications for undergraduate study.
 May 1 (Mon.) Last day for submitting applications for graduate study.

Registration

- Oct. 2 (Mon.) 8:00 a.m. First semester registration begins.
 Oct. 6 (Fri.) 5:00 p.m. First semester registration ends.
 Jan. 9-30 Second semester registration for students attending the University during the first semester:
 Jan. 11 (Thurs.) 9:00 a.m. Pharmacy, all classes.
 Jan. 12 (Fri.) 9:00 a.m. Arts and Sciences, Junior Science.
 Jan. 17 (Wed.) 9:00 a.m. Nursing, all classes.
 Jan. 18 (Thurs.) 9:00 a.m. Arts and Sciences, Junior Arts.
 Jan. 19 (Fri.) 9:00 a.m. Engineering and Architecture, classes of 1973, 1974 and Graduate.
 Jan. 22 (Mon.) 9:00 a.m. Engineering and Architecture, classes of 1975 and 1976.
 Jan. 23 (Tues.) 9:00 a.m. Engineering and Architecture, classes of 1977 and Special.
 Jan. 24 (Wed.) 9:00 a.m. Agricultural Sciences, all classes.
 Jan. 25 (Thurs.) 9:00 a.m. Arts and Sciences, Freshman.
 Jan. 26 (Fri.) 9:00 a.m. Arts and Sciences, Graduate.
 Jan. 29-30 (Mon.-Tues.) 9:00 a.m. Arts and Sciences, Senior.
 Feb. 16 (Fri.) 8:00 a.m. Arts and Sciences, Sophomore Arts and Business Administration.
 Jan. 25 (Thurs.) 9:00 a.m. Arts and Sciences, Sophomore Science.
 Jan. 26 (Fri.) 9:00 a.m. Public Health, all classes.
 Jan. 29-30 (Mon.-Tues.) 9:00 a.m. Arts and Sciences, Junior Business.
 Feb. 16 (Fri.) 8:00 a.m. Administration, Special and Orientation Program.
 Jan. 29-30 (Mon.-Tues.) 9:00 a.m. AID and Bursary students.
 Feb. 16 (Fri.) 8:00 a.m. New students second semester registration.

Semester and Examination Dates

- Oct. 9 (Mon.) 8:00 a.m. First semester classes begin.
 Jan. 27 (Sat.) 1:00 p.m. First semester classes end.
 Jan. 29 - Feb. 3 Reading period before first semester examinations.
 Feb. 5 (Mon.) 8:00 a.m. First semester examinations begin.
 Feb. 10 (Sat.) 1:00 p.m. First semester examinations end.
 Feb. 19 (Mon.) 8:00 a.m. Second semester classes begin.
 June 9 (Sat.) 1:00 p.m. Second semester classes end.
 June 11-16 Reading period before second semester examinations.
 June 18 (Mon.) 8:00 a.m. Second semester examinations begin.
 June 23 (Sat.) 1:00 p.m. Second semester examinations end.

2 - CALENDAR

School of Medicine

Applications

March 31 (Fri.) Last day for submitting applications for undergraduate study.
May 1 (Mon.) Last day for submitting applications for graduate study.

Registration

Same as other Faculties Medicine I, Graduate and Special first semester registration.
Sept. 14 (Thurs.) 9:00 a.m. Medicine II first semester registration.
Aug. 31 (Thurs.) 9:00 a.m. Medicine III first semester registration.
June 14 (Wed.) 9:00 a.m. Medicine IV and V first semester registration.
Jan. 9 (Tues.) Second semester registration for Medicine, all classes.

Semester and Examination Dates

Same as other Faculties Medicine I, Graduate and Special.
Sept. 15 (Fri.) 8:00 a.m. Medicine II first semester classes begin.
Jan. 9 (Tues.) 10:00 p.m. Medicine II first semester classes end.
Jan. 10 (Wed.) 8:00 a.m. Medicine II first semester examinations begin.
Jan. 18 (Thurs.) 10:00 p.m. Medicine II first semester examinations end.
Jan. 26 (Fri.) 8:00 a.m. Medicine II second semester classes begin.
May 26 (Sat.) 1:00 p.m. Medicine II second semester classes end.
May 28 (Mon.) 8:00 a.m. Medicine II second semester examinations begin.
June 2 (Sat.) 1:00 p.m. Medicine II second semester examinations end.
June 13, 14 (approximately) Medicine II National Board Part I Examinations.
Sept. 1 (Fri.) 8:00 a.m. Medicine III classes begin.
May 31 (Thurs.) 10:00 p.m. Medicine III classes end.
June 1 (Fri.) 8:00 a.m. Medicine III final examinations begin.
June 7 (Thurs.) 10:00 p.m. Medicine III final examinations end.
June 15 (Thurs.) 8:00 a.m. Medicine IV and V classes begin.
June 14 (Thurs.) 10:00 p.m. Medicine IV and V classes end.

AUB Special, English Entrance and Full Entrance Examinations

Sept. 27 (Wed.) 8:00 a.m. Make up course examinations of the year 1971-1972.
Sept. 27 (Wed.) 8:30 a.m. English 201 exemption examination.
10:30 a.m. Arabic 201 exemption examination.
Jan. 8 (Mon.) 8:30 a.m. English entrance examinations begin.
March 5 (Mon.) 8:30 a.m. Full entrance examinations begin.
May 7 (Mon.) 8:30 a.m. English entrance examinations begin.
July 5 (Thurs.) 8:00 a.m. Full entrance examinations begin.

AUB Graduation Exercises

July 1 (Sun.) 7:00 p.m. Baccalaureate Service.
July 2 (Mon.) 6:30 p.m. Commencement.

SUMMER SESSION

All Faculties

Registration

June 20 (Wed.) 8:00 a.m.	Agricultural Sciences; Engineering and Architecture; Pharmacy, Practical Experience.
July 6 (Fri.) 8:00 a.m.	Arts and Sciences; Medicine Graduate and Special; Pharmacy Graduate and Special; Nursing; Public Health.

Class and Examination Dates

July 2 (Mon.) 8:00 a.m.	Classes begin for Agricultural Sciences; Engineering and Architecture; Pharmacy, Practical Experience.
July 9 (Mon.) 8:00 a.m.	Classes begin for Arts and Sciences; Medicine, Graduate and Special; Pharmacy, Graduate and Special; Nursing; Public Health.
Aug. 25 - Sept. 1	Reading period and examinations for Arts and Sciences.
Sept. 1 (Sat.) 1:00 p.m.	Summer session ends, except for Pharmacy, Practical Experience.
Sept. 22 (Sat.) 1:00 p.m.	Summer session ends for Pharmacy, Practical Experience.

It is very important for all students to register on the regular registration dates between October 2 and October 6, in order to obtain the maximum benefit from classes which begin on October 9, 1972. Students are urged to register as early as possible.

Students accepted to Orientation Program, Freshman and Sophomore classes of the Faculty of Arts and Sciences, and to First Year of the Schools of Medicine, Pharmacy, Nursing and Public Health and Faculties of Engineering and Architecture and Agricultural Sciences, who do not register between October 2 and October 6, will lose their places for the year 1972-1973.

Late registration for unavoidable reasons may be permitted after October 6 by securing special permission, but each student will be required to pay a late registration fee of L. Leb. 25 irrespective of the cause of the delay in registration. No students will be excused from this late registration fee unless their registration is delayed by the University authorities.

The University dormitories will be opened for students on Sunday, September 24, 1972. Students wishing to come earlier may obtain temporary accommodation on the Campus on payment of L. Leb. 4 per day.

ACADEMIC YEAR

The academic year in the School of Arts and Sciences is 32 weeks excluding vacations; the summer session of 8 weeks is optional. The academic year in the School of Medicine is 32 weeks in first year, 34 weeks in second year, ten months in third year and eleven months in fourth and fifth years. In the other Faculties and Schools the academic year includes two semesters of 32 weeks, and a summer session as follows: in the Faculties of Agricultural Sciences and Engineering and Architecture, 9 weeks; in the Schools of Nursing and Public Health, 8 weeks; in the School of Pharmacy, 12 weeks (Practical Experience) or 8 weeks (Graduate Study and Special Students).

4 - - CALENDAR

UNIVERSITY HOLIDAYS, VACATIONS, Etc.

1972

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|---------------------------|---|
| * Nov. 8,9 (Wed., Thurs.) | Bayram, holiday. |
| Nov. 22 (Mon.) | Lebanese National Day, holiday. |
| + [Dec. 3 (Sun.) | Founder's Day. Not a University holiday.] |
| Dec. 23 (Sat.) 1 :00 p.m. | Christmas vacation begins. |

1973

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| Jan. 1 (Mon.) 10 :00 p.m. | Christmas vacation ends. |
| Jan. 6 (Sat.) | Armenian Christmas. Armenians are allowed excused absences. No examinations or quizzes will be scheduled on this day. |
| *Jan. 15,16 (Mon., Tues.) | al-Adha, holiday. |
| × *Feb. 4 (Sun.) | Moslem New Year, holiday. |
| Feb. 9 (Fri.) | St. Marun's Day. Maronites are allowed excused absences. No examinations or quizzes will be scheduled on this day. |
| *Feb. 13 (Tues.) | Ashoura, holiday. |
| March 22 (Thurs.) | Arab League Day, holiday. |
| ↵ *April 15 (Sun.) | Prophet's Birthday, holiday. |
| April 19 (Thurs.) 10 :00 p.m. | Easter vacation begins. |
| April 30 (Mon.) 10 :00 p.m. | Easter vacation ends. |
| May 1 (Tues.) | Labor Day, holiday. |
| × May 6 (Sun.) | Martyrs' Day, holiday. |

+ The University, which was known up to November 18, 1920, as the Syrian Protestant College, opened its first class on December 3, 1866. Classes will be held on Founder's Day as it is not a holiday.

* Bayram, al-Adha, Moslem New Year, Prophet's Birthday, and Ashoura are determined after seeing the moon and because of that the actual dates may not coincide with the dates in this calendar. The holiday will be the first two days of the feast as declared for Bayram and al-Adha; and the first day for the Prophet's Birthday and Ashoura. Moslem New Year is on February 4 but may fall during the reading period before first semester examinations begin.

× Since Martyrs' Day falls on Sunday, May 6, Monday, May 7, will be a holiday. If the actual days for Moslem New Year and Prophet's Birthday fall on Sunday, the Monday after will be a holiday.

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UNIVERSITY ADMINISTRATION 1971-1972

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Zahi Khuri, M.A., *Director of University Publications*.
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Comptroller

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8 - ADMINISTRATION

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Emile Rubeiz, B.A., *Associate Registrar.*

Nabeel G. Ashkar, B.B.A., *Assistant Registrar.*

Edward Mazloum, B.A., *Assistant Registrar.*

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Hind Hoshi Musa, M.A., *Acting Dean of Women.*

Nedko Etinoff, Th.B., *Activities Director.*

Abdus-Sattar Tarabulsi, *Director of Athletics.*

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Louis Durr, M.S., *Statistician.*

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 Helen Bikhazi, B.A., A.L.A., *Acquisitions Librarian.*
 Nora S. Copeland, M.L.S., *Chief Catalog Librarian.*
 Souad Farhat, Dip. Sup. Bibl., *Catalog Librarian.*
 Leila V. Fuleihan, M.L.S., *Catalog Librarian.*
 Aida Naaman, M.A.L.S., *Catalog Librarian.*
 Leila M. Freije, M.S., *Chief Serials Librarian.*
 Ardag Meghdessian, Dip. Sup. Bibl., *Serials Librarian.*
 Robert M. Copeland, M.A., *Assistant University Librarian, Readers' Services.*
 Yusuf K. Khoury, M.A., M.L.S., *Chief Reference Librarian.*
 Nawal Naamani, M.A., *Reference Librarian.*
 Mildred A. Corsette, B.S., *Chief Documents Librarian.*
 Lucy Yusuf, M.L.S., *Chief Circulation Librarian.*
 Lilian J. Vitale, M.S. *Science and Agriculture Librarian.*
 Catharina Kingma, Dip. Lib., *Engineering and Architecture Librarian.*
 (vacant) *Medical Librarian.*
 (vacant) *Assistant Medical Librarian.*
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University Museum

Dimitri C. Baramki, Ph.D., *Curator of Museums.*

University Observatory

Frans Bruin, Ph.D., *Director.*

University Chapel

Robert C. Walker, Jr., B.D., M.A., *University Chaplain.*

INTRODUCTION

Foreword

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

The University has four Faculties: the Faculty of Arts and Sciences; the Faculties of Medical Sciences; the Faculty of Engineering and Architecture; and the Faculty of Agricultural Sciences. Degrees are granted under authority of the Board of Regents of the State University of New York. The institution is co-educational and women are admitted to all schools. The language of instruction is English.

The University presents a program in international education which is unique among the universities of the world. The students, numbering 4015 in the first semester of 1971-72, come from 60 countries. Over three-fourths of the students are from the Arab countries of the Middle East and North Africa. 65% of the faculty are from the Middle East, 16% from the United States and Canada, and 21% from other countries. The cosmopolitan campus and classrooms of AUB provide a living laboratory where students of many lands meet during the most formative period in their lives to learn how to work together in a spirit of mutual understanding.

The educational philosophy of AUB is similar to that of an American university, but its program is adapted to the particular needs and educational demands of the Middle East.

Statement of Policy

The purpose of the American University of Beirut, as an institution of higher learning, is to share in the education of the youth of the Middle East, in the service of its peoples, and in the advancement of knowledge.

The University emphasizes scholarship which enables students to think for themselves. It stresses high academic standards and high principles of character. It aims to produce men and women who are not only technically competent in their professional fields but who also have breadth of vision, a sense of civic and moral responsibility, and devotion to the fundamental values of human life. In its service to students, the University strives to realize the ideal of its motto: "That they may have life and have it more abundantly".

The University stands for high academic standards. Its diplomas are recognized internationally; and in order that they may continue to be so recognized, they must be based upon satisfactory completion of the full requirements set forth in the University catalogue.

The University has been dedicated since its foundation, and continues to be dedicated, to the cultivation of high ethical, moral, and spiritual values.

The University believes in and encourages freedom of thought and expression. It expects, however, that this freedom be enjoyed in a spirit of integrity and with a full sense of responsibility.

The University believes that every member of its community—students, faculty, staff, administration—has the right to individual self-expression; it has not taken, and will never take, any action to infringe the proper exercise of this right. It must insist, however, that inherent in this right is an obligation: the obligation of everyone to give his colleagues the same right. Each has the right of peaceful

dissent, but no one has the right to prevent those who disagree with him from pursuing their proper activities.

All members of the University — students, faculty, staff, administration — are expected to conduct themselves in accordance with the spirit of this declaration of policy, the regulations of the University, and the Laws of the Republic of Lebanon, whose hospitality gives the University the privilege of carrying out its educational activities within the framework of academic freedom.

History

In 1862, American missionaries in Lebanon and Syria, under the American Board of Commissioners for Foreign Missions, asked Dr. Daniel Bliss to withdraw from the evangelical work of the Mission in Lebanon in order to found a college of higher learning which would include medical training. It was felt that this college should have an American character, should be administratively independent from the Mission, and should be maintained by its own funds. Dr. Bliss sailed for United States in the summer of 1862 to solicit funds for the new enterprise. By August, 1864, he had raised \$ 100,000 there, but because of inflation during the Civil War it was decided he should raise a sterling fund in England in order to start the operations of the college, leaving the dollar fund to appreciate in value. After collecting £ Stg. 4000 in England, he sailed for Beirut in March, 1866.

Already, on April 24, 1863, the State of New York had granted a charter for the new school, under the name of the Syrian Protestant College. The College opened with its first class of 16 students on December 3, 1866.

The cornerstone of College Hall, the first building on the present campus in Ras-Beirut, was laid by the Honorable William E. Dodge, Sr., then Treasurer of the Board of Trustees, on December 7, 1871, at a ceremony during which President Daniel Bliss expressed the guiding principle of the College in these words :

“This College is for all conditions and classes of men without regard to colour, nationality, race or religion. A man, white, black, or yellow, Christian, Jew, Mohammedan or heathen, may enter and enjoy all the advantages of this institution for three, four or eight years ; and go out believing in one God, in many Gods, or in no God. But it will be impossible for anyone to continue with us long without knowing what we believe to be the truth and our reasons for that belief”.

College Hall and the first Medical building (now the School of Public Health) were completed and occupied in 1873. The bell in the tower of College Hall pealed for the first time on March 14, 1874.

The School of Medicine opened its first class in 1867, the Preparatory School and the School of Pharmacy in 1871, the School of Commerce (later incorporated into the Faculty of Arts and Sciences) in 1900, the School of Nursing and the Hospital in 1905, the Faculty of Engineering and Architecture in 1951, the Faculty of Agricultural Sciences in 1952, and the School of Public Health in 1954. A School of Dentistry existed between 1910 and 1940.

On November 18, 1920, the Board of Regents of the State University of New York changed the name of the institution from Syrian Protestant College to American University of Beirut ; other charter amendments expanded the functions of the University.

AUB has had seven presidents. The founder, Dr. Daniel Bliss, remained in charge from 1866 until 1902 when he resigned after thirty-six years of service. His son, Dr. Howard S. Bliss, was president from 1902 until his death in 1920. For three

years Dean Edward F. Nickoley served as acting president until Dr. Bayard Dodge was appointed president in 1923. Dr. Dodge resigned from active service in 1948 and was elected president emeritus by the Board of Trustees in January, 1949. Dr. Stephen B.L. Penrose, Jr. assumed the presidency in September, 1948, and continued until his sudden death on December 9, 1954. Dr. Costi K. Zurayk, appointed vice president in 1947, served as acting president from December 9, 1954, until July 1, 1957. Dr. J. Paul Leonard served as president from July 1, 1957, until January 1, 1961. Dr. Norman Burns assumed the presidency in September, 1961, and served through July, 1965. Dr. Samuel B. Kirkwood then served as acting president from August, 1965, until his appointment as president on November 20, 1965. Marquand House, completed and occupied in 1879, has been the residence of all presidents of the University.

At the end of October, 1971, the total number of degrees granted by the University was 15,575, and the number of diplomas and certificates was over 13,000.

AUB, as a private institution, depends upon several sources of financial support. Tuition, income from endowment, and contributions from individuals, industry, and business in the United States and the Middle East provide partial funding. Grants from foundations and governments, especially the education programs of the United States Agency for International Development, have supplied a major share in recent years. The University is now engaged in a planned campaign for long-term financing. Information concerning fund raising efforts may be obtained from the Office of Development, American University of Beirut, Beirut, Lebanon.

Location and Climate

The University is situated in Beirut, Lebanon, the crossroads of the Middle East. The Campus rises to a dominant position overlooking the Mediterranean Sea and the beautiful St. George's Bay, against a background of the snow-capped Lebanon mountains to the east. The campus of seventy acres has over fifty buildings, including the academic buildings, two halls for student activities, two men's and three women's dormitories, faculty apartments, and the Medical Center.

Lebanon enjoys a semi-tropical climate, and for eight months of the year light clothes may be worn. The winter rainy season from November to March, however, is damp and cold at times. Although many Beirut buildings are centrally heated, warm clothing is recommended for the winter months. The average annual rainfall of 34 inches comes chiefly in the winter when the temperature may drop below 50° F. Except for this rainy season, the weather of Beirut is delightful. The campus abounds in luxuriant flowers and trees, which make it one of the most beautiful in the world.

ACADEMIC SERVICES

THE UNIVERSITY LIBRARY SYSTEM consists of the Central Jafet Memorial Library, the Medical Library, the Science and Agriculture Library, the Engineering and Architecture Library and the Farm Library. The Library at first occupied rooms in College Hall; in 1925 the medical books were moved to the present Medical Library in Van Dyck Hall. The construction of the present Jafet Library was made possible by a generous donation from the family of the Lebanese-Brazilian industrialist Nami Jafet; it was opened in 1951. By this time the University possessed some 80,000 volumes — 53,000 in the Jafet Library, 21,000 in the Medical Library, and the rest in International College (which became independent in 1960) and the then separate Nickoley social science collection.

Since then the growth of the University's research and graduate programs has necessitated rapid expansion. The Engineering Library was opened in 1953 and transferred under the new title of Engineering and Architecture Library to larger premises in 1971. The Agriculture Technical Reference Room (merged in 1962 into the Science and Agriculture Library which was in turn enlarged in 1969) and the Farm Library were opened in 1958. The Jafet Library was much altered and enlarged in 1959-60 and the Science and Agriculture Library was opened in 1962. The Medical Center now under construction will contain a new Medical Library, excavation for which began late in 1970. Planning has begun for the erection of a new General Library and subsequent redevelopment of the Jafet Library building.

The University's collections at June 30, 1971, comprised 345,000 volumes, 4,900 current periodicals, 2,200 manuscripts and large holdings of United Nations and government documents. Of these, the Medical Library held over 57,000 volumes and 1,040 current periodicals, forming probably the best collection in its field in the Middle East. The reference and general collections, mainly housed in the Jafet Library, are especially rich in material concerning the Arab world, and include over 40,000 volumes and 700 periodicals (current or ceased publication) in the Arabic language. Reference and loan services are provided in all Libraries, and lists of Eastern language and Medical acquisitions are issued regularly. The photoduplication service provides readers with photocopies at low cost. A special area in the Jafet Library is devoted to the history and archives of AUB.

THE UNIVERSITY MUSEUM in Post Hall brings together distinctively Near Eastern archaeological collections which are arranged with a view to their educational use for students and scholars in the archaeology of the Near East. The geological collection is displayed in the same building.

THE UNIVERSITY OBSERVATORY, founded in 1874, is equipped with a Brashear 12-inch equatorial refractor telescope and a transit instrument. The observatory has served as a meteorological station since its founding, and publishes its data each month.

THE UNIVERSITY COMPUTER CENTER, which began operation in 1964, is equipped with a full range of punched card machines as well as three computer systems; an IBM-1401, an IBM-1620 and an IBM-1130 (for hospital patient accounting). This equipment and a trained supporting staff are available for academic, research and administrative data processing.

The University operates a new 440 bed TEACHING HOSPITAL, opened in 1969, with capacity to care for more than 18,000 inpatients and to treat over 150,000 patients in its clinics and emergency facilities each year. A medical staff of 150 highly qualified physicians in most of the recognized specialties, assisted by 700 professional and auxiliary personnel and aided by latest scientific equipment, provides a broad spectrum of medical care.

ADMISSIONS

ADMISSIONS POLICY

I. GENERAL STATEMENT

The American University of Beirut is a private institution with limited facilities. Its emphasis is on quality education. For these reasons the University is unable to admit every candidate who applies, even though he may have fulfilled the minimum requirements for admission. Certain measures for selecting the most promising from among the candidates who apply are thus deemed necessary.

In order to attract the maximum number of qualified applicants from among whom it may select its students, the University adopts a positive approach in implementing its admissions policy. Thus through various measures the University seeks to inform the largest possible number of potential applicants about the various programs which the University offers. Furthermore, the University endeavors to increase its available funds for scholarship aid in order to encourage needy young men and women who are exceptionally well-qualified to study in the University.

Instruction is conducted through the medium of the English language. For this reason, command of the English language, both oral and written, is fundamental to the student's ability to study successfully in this University.

According to the charter which governs the operations of this University and to its regulations, no student may pursue his education here through correspondence or by merely passing the University examinations. Regular attendance at classes, lectures, laboratory sessions and seminars is essential to qualify the student for any degree granted by the University.

Although this University is a private institution, it has been founded to serve the youth of the Middle East, primarily the youth of Lebanon and the Arab World. The University assumes that its graduates will return to their native lands to serve their people. It is important therefore that degrees granted by the University be recognized by the countries from which our students come. Accordingly the University seeks to operate in full harmony with the systems of education in the Middle East. Its admissions policy is thus based fundamentally on the recognition of official government secondary certificates; the aim being to encourage as many of our students as possible to complete their countries' systems of secondary education before entering the University.

The University is co-educational. Men and women are admitted to all its Schools and Faculties on equal basis.

II. MAJOR CRITERIA FOR ADMISSION

Eligibility for admission to the University is determined on the basis of two major criteria:

A. Approved Academic Record. As a relatively small private institution, with a growing emphasis on graduate study and quality education, this University seeks to admit students with a high scholastic record and intellectual potential. These qualities are ascertained by a careful examination of every applicant's academic record over a minimum period of three years, his results or rank on the official secondary certificate examinations, and testimonials written by his teachers or principal.

B. Evidence of Good Health and Sound Moral Character. Before being admitted, a candidate is required to submit to and pass a thorough medical examination. In addition, special consideration is accorded to those candidates who, during their pre-university careers, give evidence of a sound moral character, interest in community affairs and potential positive, constructive leadership.

III. OTHER CRITERIA FOR ADMISSION

A. Geographic. A major purpose of the University is to provide quality education for the youth of the Middle East. While the University attracts students from about seventy countries, its policy is to give priority to applicants from Lebanon, the Arab World and other countries of the Middle East. The University assumes that its graduates will return to their native lands to serve their people.

B. Alumni. It is the policy of the University to maintain strong and continuing relations with its alumni. Thus it considers the attendance of the children of its alumni an important element for ensuring the maintenance of these relations.

IV. HARDSHIP AND OTHER SPECIAL CASES

Due to unusual or unforeseen circumstances, a limited number of candidates may not meet the strict requirements for entering the University. Promising applicants who, during the last six years prior to the completion of their secondary education, have been obliged to study under diverse educational systems, may not be required to submit those official certificates which are ordinarily required for entrance to the University. The appropriate Admissions Committee may consider their admission on the basis of other criteria such as school records, entrance examinations and other types of tests. A similar treatment may be accorded to candidates with physical disabilities such as deafness, blindness or muteness, who have completed the equivalent of 12 years of schooling.

V. QUALIFYING CERTIFICATES

Unlike many other universities, the American University of Beirut, because of its position and location, recognizes a number of different certificates of secondary education as fulfilling, in part, its minimum requirements for admission. In adhering to this policy, the University aims to select from amongst the holders of these certificates those candidates who are capable of benefiting most from university education and who can contribute most to their field of study and to their respective communities.

A detailed statement listing the various certificates which the University recognizes, and the conditions of such recognition, is found in the following pages under the heading Requirements for Admission.

VI. CANDIDATE'S FOLDER

For purposes of admission and selection, a special folder for every candidate is assembled by and kept in the Admissions Section of the Registrar's Office. This folder must include:

- A. A copy of the certificate or diploma required for admission.
- B. A report on the applicant's grades over at least the last three years of schooling.
- C. Evaluation by his principal, and if possible by two of his teachers.
- D. Results of the University English Entrance Examination, or its equivalent, together with any other test scores which may be required.

- E. A statement of at least 250 words written by the candidate about his personal and educational history and his expectations from a university education.

VII. NAMES OF STUDENTS

The names of all students will be recorded in the University books as they appear on the identity cards of students from Lebanon and Syria and as they appear on the passports of students from outside Lebanon and Syria. The names of Arabic-speaking students are recorded in Latin characters in accordance with the University transliteration system. Students, however, may have their names spelled according to their own desire on certificates and diplomas. No student will be allowed to register without first presenting his identity card or passport.

VIII. THE UNIVERSITY AND SYSTEMS OF EDUCATION IN THE MIDDLE EAST

As an institution of higher learning serving in the Middle East, the University must be responsive to educational developments which are taking place in this area, particularly in the field of secondary education. Towards this end the University maintains contacts with Ministries of Education and with private schools and, on occasion, sends some of its personnel to visit schools and discuss educational problems with government education officials and principals of private schools.

Specifically the University has adopted the following measures in its attempt to maintain closer relations with systems of education :

- A. The University maintains an up-to-date file of educational legislation of the various governments of the area, as well as programs of private institutions from which our students are drawn.
- B. Officials of the University are prepared to provide academic counseling and other information, either through interview or by correspondence, to anyone who is interested regarding the University, its programs and regulations.
- C. Through the encouragement of occasional visits and exchange of views between the professors and staff of the University and the members of the faculties and staff of other colleges and universities of the area, this University aims at strengthening its relations with these institutions. The aim here is three-fold: (1) to facilitate the evaluation of records of students desiring admission to advanced standing at this University; (2) to aid in the complex problems of equating or recognizing degrees; (3) to cooperate with fellow institutions in raising the general level of higher education in the area.
- D. The University publishes an annual catalogue and a number of other pamphlets giving information about the University to prospective students parents, institutions, government agencies and other organizations. Distribution of such publications is the responsibility of the Admissions Section of the Registrar's Office.
- E. In view of the importance of an adequate knowledge of English for success at this University, it is the responsibility of the Admissions Section of the Registrar's Office and the Office of Tests and Measurements to publicize this fact and suggest practical methods for improving the standards of English teaching, particularly in those schools from which the majority of our students is drawn.

IX. SELECTION OF APPLICANTS AND ADMINISTRATION OF ADMISSIONS POLICY

The selection of applicants for admission to any Faculty of the University is made by the Admissions Committee of that Faculty and the Admissions Section of the Registrar's Office. The Admissions Section of the Registrar's Office is also responsible for the administration of the admissions policy, and all correspondence regarding admission is centered in this Section.

The successful application of this policy depends upon the cooperative efforts of all those University officials who are concerned with admission. The selection of candidates with high academic qualifications with potential for positive, constructive leadership and with a sense of commitment for the service of their respective communities, is not an easy task. It is however fundamental to the fulfillment of the mission of the University.

REQUIREMENTS FOR ADMISSION

I. APPLICATION FOR ADMISSION

New students interested in applying for undergraduate work must make formal application before March 31. The Admissions Section of the Registrar's Office will send the necessary application forms, which must be returned with official records of the student's previous education, a certificate of good conduct from his school, one identification photograph and an application fee of L. Leb. 25, L.E.3, I.D.3, £ Stg. 3 or \$ 8. *This fee is not refundable.* Applicants will be notified, in writing, during the month of April of the decisions of the Admissions Committee.

Applications for admission to graduate work should be submitted to the Admissions Section of the Registrar's Office not later than May 1 for students who wish to begin graduate work in summer or October; and not later than December 31 for students who wish to begin their studies during the second semester.

Candidates who intend to join only the summer school must submit applications by June 10. If a student applies and fails to enroll in the summer session, a charge of L. Leb. 25 will be deducted from his standing deposit with the University.

II. GENERAL REQUIREMENTS

The following requirements are in all cases the *minimum* requirements demanded by the University, and their fulfillment by a candidate does not automatically ensure his selection. Candidates are finally selected, up to the limits of available space, from the most promising of all eligible applicants.

A. Secondary Certificates

The University, utilizing its experience of the performance of holders of various secondary certificates, recognizes some secondary school certificates for eligibility for admission, and may require holders of these certificates to pass the English Entrance Examination and/or other examinations.

Some systems of education grant two or more types of certificate (such as literary, scientific, etc.). Holders of literary certificates are eligible to enter the Freshman Arts Program, or to concentrate in the Arts or Social Science fields. A holder of a literary certificate may also be eligible to enter the Freshman Science Program or concentrate in one of the Science fields or Mathematics, if he passes the University Entrance Examination in Mathematics and Science. Holders of scientific and

mathematics certificates may enter either the Sciences or Arts Freshman Program, or they may concentrate in one of the following fields: Arts, Social Sciences, Sciences, or Mathematics.

Some systems of education do not in their secondary certificates distinguish between literary, scientific or other types of certificate, but indicate the subject or subjects passed. Holders of such certificates are required to submit evidence that they have passed in a specified number of subjects in order to qualify for admission. If the certificate shows that the candidate has passed in fewer subjects than the number specified, it will not be recognized by the University for admission. Nevertheless, if the certificate shows that the candidate has passed in the specified number of courses, but that these lack one, and only one, of those *subjects* which are required, then the candidate may make up the deficiency by passing the Entrance Examination of the University in the missing subject.

If the University requires a certificate to show passes with credit standard, a certificate which does not meet this standard will not be considered.

B. Advanced Status

Candidates may receive credit for all courses completed in accredited institutions with a grade of 70 or above or its equivalent, and which are required for a degree from this University, provided these candidates had met the entrance requirements of this University before they were admitted to such institutions. Candidates who believe that their previous academic training entitles them to advanced status may present their case in writing to the Registrar, together with an official transcript of their record.

Students who believe that they have reached a level of competence in the subject matter equal to that of a required course, may (if they secure the approval of the relevant Department and pass an examination in the field) substitute another course for the required course.

C. Admission of Lebanese Students

Lebanese applicants may be admitted only by presenting the Lebanese Baccalaureate, Part II, or its equivalent as recognized by the Lebanese Government. Non-Lebanese applicants may be admitted by presenting any one of the Secondary School Certificates recognized by this University.

D. Change of Nationality

Candidates admitted to the University as non-Lebanese will not be permitted to change their nationality to Lebanese on the records of the University unless they fulfilled the requirements for admission of Lebanese students at the time of entrance to the University.

E. Applicants from Outside the Area

Applicants who are not citizens of the area which AUB serves, and whose families reside outside this area, are not normally considered for admission to the Freshman or Sophomore classes.

F. English Examination

Candidates must demonstrate a level of English proficiency consistent with the demands of a program carried on almost exclusively in the English language. This may be done in any one of the following four ways :

1. By passing the English Entrance Examination of this University. This examination is given in most countries of the area, and several times per year at the University. The office of Tests and Measurements, American University of Beirut, Beirut, Lebanon, will provide information on the local and foreign testing schedules and will send, upon request, a booklet on syllabi of examinations with sample questions. The score in this examination will determine whether a candidate may proceed at once to a normal credit program; whether he needs one or more semesters of special help in English along with his regular courses; whether he needs a year of concentrated non-credit English preparation in the University Orientation Program; or whether he must improve his English elsewhere before re-applying for admission.
2. By achieving a satisfactory score on the TOEFL (Test of English as a Foreign Language). This test is given in most countries of the world, in October, January, March and June. TOEFL, Educational Testing Service, Princeton, N.J. 08540, U.S.A. will provide full information and application forms upon request. The application must specify that results should be sent to the American University of Beirut.
3. By submitting evidence of recent satisfactory completion of two or more years of full-time study in residence in a recognized secondary school, college or university in the United States, Canada, the United Kingdom and Irish Republic, Australia or New Zealand, where English is the language of instruction.
4. By transferring from Beirut College for Women, Beirut, Lebanon; Haigazian College, Beirut, Lebanon; Bir Zeit College, Bir Zeit, Jordan; American University, Cairo, Egypt; College of Petroleum and Minerals, Dhahran, Saudi Arabia; and similarly recognized institutions in the area which use English as the language of instruction, *provided that the English Entrance Examination of this University or its equivalent was passed at the time of entrance to such recognized institutions.*

A student who is exempted from the English examination requirement under items 3 or 4 above, and whose performance indicates to his advisor or department a possible need for remedial English, will be referred to the Office of Tests and Measurements for appropriate action and recommendation.

G. Arabic Examination

A candidate whose native language is Arabic must pass an examination in the Arabic language, unless he holds an approved government certificate issued by an Arab country. Scores achieved in this examination will determine whether a candidate may proceed at once to a normal credit program; whether he needs a non-credit remedial Arabic course (Arabic 43) for one or two semesters; or whether he must improve his Arabic elsewhere before re-applying for admission.

H. Commercial, Agricultural and Vocational Secondary Certificates

These certificates are not recognized for admission to this University. If, however, such certificates are recognized by the government of the applicant or in the country where the applicant studies as equivalent to the official secondary school certificate, their holders will be eligible for admission on passing the full entrance examinations for admission to this University.

III. ADMISSION TO THE FRESHMAN CLASS AND FIRST YEAR OF B.S. DEGREE PROGRAM OF THE SCHOOL OF NURSING

Admission to the Freshman class of the School of Arts and Sciences and to the

first year of the Degree Program in Nursing leading to the B.S. degree is possible by one of the following three methods:

A. Official Secondary Certificate of the Applicant's Country or its Equivalent as recognized by his country and approved by this University.

Holders of the official secondary school certificate issued by the country of an applicant, or its equivalent, as recognized by his country & approved by this University, are eligible for admission provided that they pass the University entrance examination in English (or its equivalent) or such other examinations as may be required by this University. *Lebanese candidates may be admitted only on presentation of certificates listed in B below that are recognized by the Lebanese Government as equivalent to the Lebanese Baccalaureate, Part II.*

B. Official Certificates Approved by this University

Non-Lebanese applicants who hold the official secondary certificate of their respective countries, or who hold any one of the following certificates of secondary education, are eligible for admission to the Freshman class provided that they pass the University entrance examination in English (or its equivalent) or any other examination that may be required by this University. Holders of any of these certificates may enter the Sophomore Class, First Year Engineering and Architecture, First Year Pharmacy, First Year Agriculture, First Year Public Health and Second Year of the Nursing Degree Program *if they pass the full entrance examinations to the Sophomore Class.* Arabic-speaking candidates who hold any one of the certificates marked with an asterisk (*) are required to pass the entrance examination in Arabic.

The Bahrain Secondary Certificate.

**The Cyprus Gymnasium Certificate.*

The Egyptian Secondary Certificate.

**The Ethiopian Secondary Certificate.* For admission to the Arts Program the certificate should indicate that the candidate has passed in at least the following five subjects: English; Second Language; History or Geography; Mathematics or General Science or Biology or Chemistry or Physics; One Elective.

For admission to either the Science or Arts Programs the certificate should indicate that the candidate has passed in at least the following five subjects: English; Second Language; Mathematics; Two subjects from Biology, Chemistry, and Physics.

**The General Certificate of Education (the University of London G.C.E. and the Oxford-Cambridge G.C.E.).* The certificate should indicate that the candidate has passed in at least five required subjects, three at ordinary and two at advanced level.

For admission to the Arts Program the following are required:

Advanced Level: At least two from the following subjects: Economics; English Literature; Geography; History; Pure Mathematics; Biology; Chemistry; Physics;

Ordinary Level: At least the following subjects if not passed at Advanced Level: English Language; Second Language; Geography or History; Pure Mathematics or General Science or Biology or Botany or Chemistry or Chemistry with Physics or Physics.

For admission to either the Science or Arts Programs the following are required:

Advanced Level: At least the following subjects: Pure Mathematics; Biology or Chemistry or Physics;

Ordinary Level: At least the following subjects if not passed at Advanced Level: English Language; Second Language; Pure Mathematics; Two subjects from Biology, Chemistry or Physics.

Candidates who have passed in the required subjects at Ordinary Level and in two subjects at Advanced Level, but who lack one of the subjects which are required at Advanced Level, are allowed to take the University entrance examination in the subject in which they are deficient.

Candidates who have passed in the required subjects at Ordinary Level and in two subjects at Advanced Level, both of which are not the subjects which are required at Advanced Level, must pass the full entrance examinations of the University.

**The French Baccalaureate.*

**The Greek Gymnasium Certificate.*

**The International Baccalaureate.* The certificate should indicate that the candidate has passed in at least six subjects.

For admission to the Arts Program the following are required:

Higher Level: At least three from the following subjects: Economics; Geography; History; Mathematics; Biology; Chemistry; Physics; Philosophy.

Subsidiary Level: At least the following subjects if not passed at Higher Level: English; Second Language; History or Geography; Mathematics or Biology or Chemistry or Physics.

For admission to either the Science or Arts Program the following are required:

Higher Level: At least the following subjects: Mathematics; Biology or Chemistry or Physics; One Elective.

Subsidiary Level: At least the following subjects if not passed at Higher Level: English; Second Language; Mathematics; Two from Biology, Chemistry, Physics.

The Iraq Secondary Certificate.

**The Iranian Secondary (Sixth Class) Certificate.*

The Jordanian Secondary Certificate.

The Kuwait Secondary Certificate.

The Libyan Secondary Certificate.

The Moroccan Baccalaureate.

**The Oxford-Cambridge Higher School Certificate.* A candidate for admission must fulfill the following conditions:

1. The Oxford-Cambridge School Certificate must show credit standard in the same subjects which are required at Ordinary Level in the General Certificate of Education as listed on page 20 and at the top of this page.
2. The Higher School Certificate must show that the candidate has passed in the same subjects which are required at Advanced Level in the General Certificate of Education as listed on page 20.

**The Pakistan Higher Secondary Certificate.* For admission to the Arts Program the certificate should indicate that the candidate has passed in at least the following five subjects: English; Second Language; History or Geography; Mathematics or General Science or Biology or Chemistry or Physics; One Elective.

For admission to either the Science or Arts Programs the certificate should indicate that the candidate has passed in at least the following five subjects: English; Second Language; Mathematics; Two subjects from Biology, Chemistry, Physics.

The Qatar Secondary Certificate.

The Saudi Secondary Certificate.

The Sudan Secondary Certificate. For admission to the Arts Program the certificate should indicate credit in at least the following five subjects: English; Arabic; History or Geography; Mathematics or General Science or Biology or Chemistry or Physics; One Elective.

For admission to either the Science or Arts Programs the certificate should indicate credit in at least the following five subjects: English; Arabic; Mathematics; Two subjects from Biology, Chemistry, Physics.

The Syrian Baccalaureate.

The Tunisian Baccalaureate.

Other Official National Secondary Certificates that Admit to University Work in the Country of Issue.

C. Secondary Certificates which Qualify their Holders for Admission to National Universities, and are Awarded in Countries which do not have Official Secondary Certificates.

U.S.A. applicants who hold diplomas from high schools in the United States which are accredited by an official U.S.A. accrediting agency, and applicants who hold certificates from their countries where there is no official secondary certificate and the school certificates which they hold meet the requirements for admission to the universities in their own countries, are eligible for admission provided they pass the full entrance examinations to the Freshman Class or attain satisfactory scores on the American College Testing Program Tests or on the College Entrance Examinations Board Tests listed below. Non-Lebanese candidates who hold these certificates after having completed six years of study in these countries may also be eligible for admission on the same basis.

The high school diploma from the United States should cover sixteen units. A unit is defined as a minimum of 120 clock-hours of instruction, or not less than one-sixth of a full year's work. For Freshman Arts the following units are required: four of English; two of a second language; two of Mathematics; two of Science (from General Science, Biology, Chemistry, Physics); two of Social Sciences (one of which must be History); four Electives. For Freshman Sciences the units required are: four of English; two of a second language; three of Mathematics (including trigonometry of the right triangle); three of Science (from General Science, Biology, Chemistry, Physics); two of Social Sciences (one of which must be History); two Electives. The units required for Science are also acceptable for admission to Freshman Arts.

In order to be eligible to enter the University, holders of the above certificates must pass the University entrance examinations in the following subjects: English; Arabic (required of Arabic-speaking students. Others must present evidence of the successful completion of two years of a language other than English); Mathematics; Science; Social Science.

Holders of the above certificates may be also eligible to enter the University by attaining satisfactory scores on the American College Testing Program Tests (ACT), or on the College Entrance Examinations Board Tests (CEEB) in the following subjects: Scholastic Aptitude Test; Mathematics (Level 1); Biology or Chemistry or Physics; One Elective.

Applicants may be eligible to enter Freshman Arts or Freshman Science, depending upon the program which they have followed in their schools and the results of the entrance examinations of this University, or the College Entrance Examinations Board Tests, or the American College Testing Program Tests.

Information about the entrance examinations of the University, their syllabi, dates and places of administration may be obtained from the Office of Tests and Measurements at this University.

The College Entrance Examination Board (CEEB) gives its tests at regular intervals throughout the year in various centers. The Office of Tests and Measurements of this University administers the CEEB test in this area. Full information about applications, fees, deadlines and schedules can be obtained from the College Entrance Examination Board, Princeton, New Jersey 08540, U.S.A. Candidates must arrange for the CEEB tests to be taken in time for the result to reach this University by March 31, the deadline for applications.

IV. ADMISSION TO SOPHOMORE CLASS ; FIRST YEAR AGRICULTURE, ENGINEERING AND ARCHITECTURE, PHARMACY, PUBLIC HEALTH ; SECOND YEAR B.S. PROGRAM IN NURSING

Admission to the above-mentioned classes may be possible by one of the following methods :

A. Lebanese Baccalaureate, Part II

All candidates seeking admission to the University on the basis of the Lebanese Baccalaureate, Part II, must pass the entrance examination in English. *Lebanese candidates may be admitted only by presenting the Lebanese Baccalaureate, Part II, or its equivalent as recognized by the Lebanese Government. Most of the official certificates that are recognized by the Lebanese Government as equivalent to the Lebanese Baccalaureate, Part II, are recognized by the University for admission to the Freshman class or to the Sophomore class by full entrance examinations.*

The Lebanese Baccalaureate, Part II (Philosophy) entitles its holders to admission to the Arts Program and the Program in Business Administration of the Faculty of Arts and Sciences. Candidates who seek admission to Science Programs in the Faculty of Arts and Sciences, the Faculty of Agricultural Sciences, or the Schools of Pharmacy and Public Health on the basis of the Lebanese Baccalaureate, Part II (Philosophy) must pass the entrance examinations in Mathematics and Chemistry. Candidates who seek admission to the School of Nursing must pass the entrance examinations in Mathematics and Biology.

The Lebanese Baccalaureate , Part II (Experimental Science) entitles its holders to enter all the programs of the Faculty of Arts and Sciences, the Faculty of Agricultural Sciences, and the Schools of Nursing, Pharmacy and Public Health ; and to First Year Architecture in the Faculty of Engineering and Architecture. The Lebanese Baccalaureate, Part II (Mathematics) entitles its holders to enter all the programs of the School of Arts and Sciences, the Faculties of Agricultural Sciences and Engineering and Architecture, and the Schools of Nursing, Pharmacy and Public Health.

Candidates who are admitted to the Sophomore Arts Program or the Program in Business Administration' on the basis of the Lebanese Baccalaureate, Part II (Experimental Science or Mathematics) are required to take 6 credits of History or pass the History Entrance examination to Sophomore.

B. Transfer from Accredited Institutions of Higher Learning or Recognized Junior Colleges

Applicants who hold certificates or diplomas from one of these institutions are eligible for admission subject to the following conditions :

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1. That they have completed a class equivalent in standard to the Freshman Class of the Faculty of Arts and Sciences of this University and have taken the courses which are required in the Freshman Class of this University.
2. That prior to their admission to the institution from which they are transferring they had met the requirements for admission to the Freshman Class of this University.
3. That they pass the English Entrance Examination, if they had not passed it prior to their admission to the institution from which they wish to transfer to this University.
4. That they pass the Arabic Entrance Examination, if they are Arabic-speaking students.

C. Entrance Examinations

Holders of official certificates recognized by the University for admission to the Freshman Class listed under III B above, pages 20-22, may enter the Sophomore Class, First Year Engineering and Architecture, Pharmacy, Agriculture, Public Health and Second Year of the Nursing Degree Program by passing the full entrance examinations. Applicants who hold certificates which are approved by the University for admission to the Freshman Class, and have completed one year of post secondary education in non-accredited institutions (provided they had fulfilled the entrance requirements to the Freshman Class of this University prior to their admission to these institutions), may be admitted after passing the full entrance examinations. Decision regarding the admissibility of a candidate will be based upon his previous record and upon the results of the entrance examinations.

Examinations in the following subjects are required of candidates seeking admission to the Arts Program and the program in Business Administration of the Faculty of Arts and Sciences: English; Arabic or Elective (Arabic is required of Arabic-speaking students); History; Biology or Chemistry or Physics.

Applicants seeking admission to the Science Program of the Faculty of Arts and Sciences, the Faculties of Agricultural Sciences and Engineering and Architecture, and the Schools of Pharmacy, Nursing (Degree Program), and Public Health, are required to pass the entrance examinations in the following subjects: English; Arabic or Elective (Arabic is required of Arabic-speaking students); Mathematics; Biology or Chemistry or Physics (Chemistry is required for Agriculture, Pharmacy, Public Health, and Chemistry; Biology is required for Nursing; Physics is required for Physics major; Physics and Chemistry are required for Engineering and Architecture).

Information about the entrance examinations of the University, their syllabi, dates and places of administration may be obtained from the Office of Tests and Measurements of this University.

V. ADMISSION TO ADVANCED STANDING

Candidates from recognized institutions of higher education and from recognized Junior Colleges may be admitted to advanced standing at this University subject to the following conditions:

1. Such candidates should have fulfilled the admission requirements of this University prior to their admission to the institution from which they are transferring.

2. Such candidates should have passed the English Entrance Examination to this University before admission to the institution from which they are transferring.
3. Arabic-speaking candidates must pass the Arabic Entrance Examination.

Following is the University policy regarding transfer to advanced standing of students from certain recognized or accredited institutions in the area.

A. From Institutions of Higher Education in Lebanon

Candidates from institutions of higher education in Lebanon will be considered on the following basis :

1. Candidates who are admitted to the Sophomore Class of an institution of higher education in Lebanon with the Lebanese Baccalaureate, Part II, or an equivalent certificate recognized by AUB for admission to the Sophomore Class, may be eligible to receive transfer credit for work completed beginning with the Sophomore Class.
2. Candidates who are admitted to the Freshman Class of an institution of higher education in Lebanon with a certificate recognized by AUB for admission to the Freshman Class, may be eligible to receive transfer credit for work completed beginning with the Freshman Class.
3. Candidates who are admitted to an institution of higher education in Lebanon without a certificate recognized for admission to AUB, but hold a Sophomore Diploma recognized by the Lebanese Government as equivalent to the Lebanese Baccalaureate, Part II, may be eligible to receive transfer credit beginning with the Sophomore Class, for work done after the Sophomore Diploma. The Sophomore Diploma for such candidates will be considered for admission to the Sophomore Class of AUB.
4. Candidates who are admitted to the Sophomore Class of an institution of higher education in Lebanon with the Lebanese Baccalaureate, Part II, or an equivalent certificate (other than the Sophomore Diploma) recognized by AUB for admission to the Sophomore Class, plus a Bachelor's degree, may be eligible for admission to graduate work and may be able to complete the requirements for a Master's degree in a minimum period of one year.
5. Candidates who are admitted to the Freshman Class of an institution of higher education in Lebanon with a certificate recognized by AUB for admission to the Freshman Class, plus a Bachelor's degree, may be eligible for admission to graduate work and may be able to complete the requirements for a Master's degree in a minimum period of one year.
6. Candidates who are admitted to an institution of higher education in Lebanon without a certificate recognized for admission to AUB but hold a Sophomore Diploma recognized by the Lebanese Government as equivalent to the Lebanese Baccalaureate, Part II, plus a Bachelor's degree, may be eligible for admission to graduate work, but will be required to complete the equivalent of two years on a full-time basis before qualifying for the Master's degree.
7. Candidates who are admitted to an institution of higher education in Lebanon without a certificate recognized for admission to AUB and do not hold a Sophomore Diploma recognized by the Lebanese Government as equivalent to the Lebanese Baccalaureate, Part II, will not be eligible for transfer credits for admission to graduate work in this University.

B. From Beirut College for Women, Beirut, Lebanon, or Haigazian College, Beirut, Lebanon, or College of Petroleum and Minerals, Dhahran, Saudi Arabia.

Students planning to transfer to this University after beginning their work at these institutions are strongly advised to consult the catalogue of this University before embarking on their college program. Successful candidates from either institution will be given credit on a course-for-course basis, provided the grades are acceptable, and provided at the time of admission to these institution they had meet the full entrance requirements of this University.

C. From Bir Zeit College, Bir Zeit, Jordan

Bir Zeit College is an accredited Junior College. Candidates who complete the regular Freshman program may transfer to the Sophomore Class at this University, and candidates who complete the regular Sophomore program may transfer to the Junior Class at this University: provided the following conditions are met: (1) their grades are satisfactory, (2) they had met the entrance requirements of this University at the time they were admitted to this College, (3) they pass the AUB English Entrance Examination.

VI. ADMISSION TO THE SCHOOL OF MEDICINE

To be eligible for admission to the School of Medicine a student must be at least 18 years old, must have completed the legal premedical educational requirements of his country, must have passed a proficiency examination in the use of the English Language, and must have completed the Junior year in the School of Arts and Sciences of this University or its equivalent including the following courses: Biology 201 and 202 — General Biology (8 credits), Biology 232 — Development (4 credits), Biology 243 — Genetics (3 credits), Chemistry 101 — General Chemistry (4 credits) or Chemistry 201 — Chemical Principles I (5 credits), Chemistry 202 — Chemical Principles II (5 credits), Chemistry 209 — Organic Laboratory (2 credits), Chemistry 211 and 212 — Organic Chemistry I and II (6 credits), 11 credits of English, 9 credits of Arabic (required of Arabic-speaking students), Mathematics 101 — Introductory College Mathematics or equivalent (3 credits), Mathematics 102 — Calculus and Analytical Geometry I (4 credits), Physics 103, 204 and 205 — General Physics I, II and III (12 credits), Psychology 201 — General Psychology (3 credits), and Sociology 201 — Introduction to Sociology (3 credits).

VII. ADMISSION TO THE DIPLOMA PROGRAM IN NURSING

To be eligible for admission to the three-year Diploma Program in Nursing, a student must be at least 17 years old, must have successfully completed the sixth year of secondary education, and passed the AUB Entrance Examinations in English and Science at a level determined by the School. Lebanese students are also required to meet the Lebanese Government requirements for admission to Nursing. The Lebanese Baccalaureate, Part I, is expected to become a Government requirement for admission in October, 1972. Students are urged to study the scientific rather than the literary program of studies in their secondary school program. Preference will be given to applicants with good character, references, a strong science background, and high academic achievement.

VIII. ADMISSION TO NON-DEGREE AND OTHER PROGRAMS

Some schools offer non-degree and special programs for which admission requirements differ from the admission requirements of the Degree programs. For information about the admission requirements of these programs, refer to the appropriate school section of the catalogue.

IX. ADMISSION TO GRADUATE WORK

To be eligible for admission to graduate work, a student must hold a university degree and must have a minimum acceptable average in the field of his intended graduate work or related fields. All applicants must pass the English Entrance Examination.

For complete and detailed information regarding admission to graduate work, see the section on Admission under Graduate Study at the end of the catalogue.

STUDENT LIFE

STATEMENT OF POLICY FOR STUDENTS

In associating himself with this University, an action which is purely voluntary, the student must accept that by freedom of choice he imposes upon himself the standards, the rules and the conditions established by the legally constituted authority of the University. Thus, any student may withdraw from the University whenever he considers the obligations assumed upon enrollment inconsistent with his expectations. Coexistent with this principle must be the acceptance of the right of the University, upon evidence of the student's inability to abide by its regulations, to insist upon his withdrawal and/or refuse his readmission.

OFFICE OF STUDENT AFFAIRS

Through its Office of Student Affairs the University directs, guides, and encourages a number of activities and services to complement the academic work of the student and to provide an enriching cultural, physical, social and morally uplifting environment. This is accomplished through the following divisional services.

Student Societies and Publications

There are numerous student academic societies, interest groups, and activity clubs through which a student may manifest his feelings and attitudes, and seek out relief from the purely academic. There are student publications, such as the University-wide weekly, *Outlook*, or the yearbook *Campus*. All of these activities are carried out by and for students, under a minimum of guidance and assistance by Faculty or Administrative personnel. These organizations sponsor such activities as lectures, panel discussions, parties and receptions, dances, trips, exhibits, drama and musical programs.

Counseling for Students

A University counseling service is available to help students with their personal problems, whether they stem from inadequate finances, interpersonal maladjustments, or academic failures. Students may consult the Dean of Students, the Dean of Women, the Psychological Counselor, or the Academic Advisor.

Religious Interests

The University cooperates with various off-campus student centers that concern themselves with the student's religious life. Such groups as the University Christian Center, the Newman Club, the Orthodox Youth Center, and the Islamic Center of Beirut are available.

A Sunday morning chapel service is held on campus in the University Chapel, open on a voluntary basis to students and staff of all denominations.

Athletics and Recreation

A complete program of athletics in the form of individual and competitive games is given strong support. The program for men includes football, basketball, volleyball, soccer, track, tennis, judo, karate and a number of other activities. For women there are available such sports as volleyball, tennis and basketball, with a complement of other recreational interests. Swimming is available to all, since the University is so conveniently situated on the shores of the Mediterranean.

Athletics facilities include: two fields for football and softball, two outdoor basketball and volleyball courts, one indoor court for all games, a 400 meter track, six tennis courts, and our own swimming beach.

For courses in Physical Education, see under Faculty of Arts and Sciences.

STUDENT HOUSING

Residences on Campus

There are five buildings of the dormitory type, capable of accommodating over 1000 students. Two are large six and eight story modern type dormitories for men, with a capacity of 600. The other three are more moderate sized buildings, accommodating about 450 women. All have the latest in conveniences, such as heating, hot water, showers, and the commonly expected furniture and bedding. Reception lounges and recreation areas are also available. The men's dormitories are situated in the south-western corner of the campus, the women's dormitories in the northeastern corner. The system of accommodation is that of two students sharing a room, with some exceptions.

On-campus accommodations include sheets, blankets, towels, and soap. Linens are changed weekly, rooms are cleaned daily. Toilets and shower rooms serve about 10 persons in each section.

Head residents and counselors are always available to attend to any irregularities or reasonable needs of occupants.

All arrangements for on-campus housing are made by the applicant through the Office of Student Affairs. Applications are mailed out on request, and replies will be mailed as soon as possible. In general the following rules apply for those who are concerned as to whether or not they are required to live on campus, or would like or want to live off campus.

1. The University requires that every student under 22 years of age, not a resident of Beirut and its suburbs, and having not reached his Junior year, spend one year in a University operated or approved residence.
2. Those who are not required to live in University operated or approved residence but still seek such accommodations, may apply for the same on a space-available basis.
3. Exceptions to the above rules may occur only in instances where the University has made prior commitments to a bursary or group program.

Off-Campus Accommodations

The University Christian Center

This is a University recommended hostel for men and women. It offers a special program in international living, selecting its occupants on the basis of nationality, experience, and ability to contribute to the aims of the program.

Applications should be made directly to the U.C.C. which is located very close to the campus. Students who are required to live on campus but desire to live at the U.C.C. must clear first with the Office of Student Affairs.

The Y.W.C.A.

In a most modern building the Y.W.C.A. (a distance of 15 minutes by foot) offers complete accommodations, including cafeteria service. Prices are moderate. Applications should be made directly to the Y.W.C.A.

FOOD SERVICE

The University operates a modern cafeteria style food service on the campus. Students have the option of using the food service facilities of the University or eating elsewhere, but most students find it desirable to eat at AUB because of low prices and good quality wholesome food. The estimated cost of three daily meals is between L. Leb. 5 and L. Leb. 6.

Another dining room adjacent to the Faculty Lounge serves one hot meal daily including snacks to Faculty, Staff and their guests.

The University also operates snack facilities where students and their guests can obtain a variety of hot and cold food and refreshments.

MEDICAL CARE

The University Health Service (UHS), located physically at the Gulbenkian Infirmary on campus, provides medical care to members of the University Community at large who hold HIP (Hospital Insurance Plan) memberships. Therefore every individual concerned should familiarize himself with the regulations of HIP which are presented in a separate pamphlet.

Patients are seen daily at the Health Service by appointment made at the reception desk in advance either by calling in person or by telephone during regular hours 8-12 a.m. and 2-5 p.m. A physician is available daily to receive patients on "walk in basis"; these patients must have problems of an *urgent* nature, otherwise they will be given a return appointment for a later time.

The major specialties of General and Internal Medicine, including Psychiatry, and Pediatrics, together with Obstetrics-Gynecology, are represented on the staff of UHS. Patients are channelled accordingly and they usually have a choice of one of at least three physicians.

In case of *emergency* the patient should report directly to the Emergency Unit at the Medical Center or to the nearest emergency service or physician. In such cases of medical emergency when prior consent of the student or his legal representative or parent cannot be obtained, treatment and/or surgery will be performed, if in the opinion of the attending physician(s) such treatment or surgery cannot be delayed. The University assumes no legal responsibility for accidents or injuries resulting from participation in athletics or occurring in University laboratories, buildings or grounds.

The present Infirmary has available eighteen beds for in-patients. Those who are too sick and require special care are admitted to the Hospital by the UHS physicians. The schedule of office hours and names of attending physicians at all times together with their telephone numbers and specialties, are printed out monthly and distributed to the departments concerned on Campus, the Medical Center and Emergency Unit. Extra copies are made available at the Health Service upon request.

In order to safeguard the total group, all new students are asked to complete the Entrance Medical Form sent to them with the acceptance letter prior to registration.

They are also given a tuberculin skin test while registering. Old students are requested to inform the UHS physician, early in the first semester, of any important change that may have occurred in their medical condition.

FINANCIAL AID TO STUDENTS

University Assistance

Opportunities for financial assistance to needy and qualified students are available in the form of scholarship grants, scholarship loans, work grants-in-aid, graduate assistantships, student employment and emergency loans. Except for emergency loans all such assistance is available only by application and under certain regulations. For a complete listing of University scholarship awards and prizes, see below. Following is a brief description of each type of assistance :

Scholarship Grants - These are outright grants of assistance to students based on need and academic achievement. The amounts awarded may vary from a small part of the tuition to full support for tuition, room, board and books. The source of the scholarship and the student's qualifications will be the final determining factor.

Scholarship Loans - These are loans issued to students on the basis of need, academic achievement and qualification. The amounts allowed depend on the rules of the Loan Fund. A formal contract is drawn up between the student and the University, with an agreement as to the dates of repayment. The loans are designated only for the necessary educational expenses of the individual student, and not for any other needs.

Work Grants-in-Aid - These are scholarship awards to students on the basis of need, academic achievement and qualification. However, the award is allowed only with the understanding that the student must work a certain number of hours during the entire semester. He will be credited with the entire amount of the award only after he has completed the full number of hours. Otherwise he will be credited only with a portion thereof.

Graduate Assistantships - For students on the graduate level there are fellowships which cover tuition costs and partial living expenses. In return for this the student is expected to work a specified number of hours weekly for the Department. Students are usually selected on the basis of a high academic record and their value to the Department.

Student Employment - Many opportunities are available for student employment. Any student may apply, but selection depends on the student's need, ability to do the job, and sufficient time for work. It operates on a first-come-first-served basis.

Emergency Loans - These are small loans to assist students who are suddenly faced with serious hardship due to unforeseen circumstances, such as loss of money, theft, accidents, etc. The money is provided through the Dean's Loan Fund in the Office of Student Affairs. No application is necessary, but approval must be obtained from the Dean of Students.

Applications - Applications for scholarship grants, scholarship loans, work-grants-in-aid, and student employment may be secured from the *Office of Student Affairs*. Applications for graduate assistantships may be obtained from the Department or the Faculty to which the student is applying. All scholarship applications must be filed during the month of March for assistance during the following academic year.

Assistance from Organizations outside the University

There are several large organizations that provide assistance to A U B students. Among them are :

The Alumni Association Loan Fund - This provides scholarship loans to students of the University. Application should be made to the Alumni Association Office in Beirut.

The Gulbenkian Foundation - This also provides substantial assistance in the form of scholarship grants or scholarship loans. Applications should be directed to the nearest Gulbenkian office, or to the main office in Lisbon, Portugal.

The Lebanese Government - The Ministry of Education has been providing scholarship grants to AUB Lebanese students. Applications should be made through the Office of Student Affairs.

The Agency for International Development (AID) of the United States Government - This has been providing full scholarships to qualified students to attend AUB. Countries currently included are Abu-Dhabi, Afghanistan, Bahrain, Cyprus, Dubai, Iran, Jordan, Lebanon, Nepal, Pakistan, and Turkey. Candidates are selected by the AID Training Office in their respective countries.

Bursaries - A number of students enroll at AUB as bursary students ; their university fees are paid by a sponsoring agency : government, international organization, educational institution, philanthropic foundation, or business firm. Candidates are selected by the sponsoring agency.

LIST OF UNIVERSITY SCHOLARSHIPS AND LOANS

Scholarship Grants

Fund	Designated for
Abqaiq Women's Group Scholarship	Nursing student
Vivian B. Allen Foundation	Graduate student - travel
Alumni Association of North America	Any qualified student
American Aid for Arab Refugees	Palestinian orphan
American Ramallah Federation Scholarship	Palestinian student
American Women's Club, Lebanon	Lebanese Arts and Sciences Sophomore student
	Lebanese First Year Nursing student
Anonymous Agriculture Scholarship	Agriculture student
Arakelian Scholarship Fund	Any needy and qualified student
Armenian General Benevolent Union	Armenian student
Antoine Albert Assi Memorial	Lebanese student in Business Administration
	Student from Jezzine
George Aziz Loan Fund	Women students
Mrs. Dorothy Berry Fund	Any needy and qualified student
Bliss Memorial Scholarship Fund	Any needy and qualified student
Daniel Bliss Fund	Any needy and qualified student
Mrs. Daniel Bliss Fund	Lebanese students preferably from Shweir and surrounding districts
Carlslaw Scholarship Fund	Syrian Arts & Sciences and/or Business Administration
Anwar Challah Scholarship	Needy Lebanese student in Business Administration or Economics
Chase-Manhattan Bank Scholarship	

Fund

Hana Said Chouljy Scholarship Fund

Miss Eleanor Clapp Scholarship
 Clapp Constance Scholarship
 Class of 1941 Silver Jubilee Fund
 Community Church of Beirut
 Craft Scholarship
 Dhahran Women's Group
 Douma Society of the U.S.A.
 Harold Morton Esty Memorial Fund
 Nabih Faris Scholarship Fund
 J.M. Fawaz Fund
 David A. Fuleihan Scholarship

Gaza Fund
 Griffin Scholarship
 Calouste Gulbenkian Foundation

Antun Halabi Memorial Scholarship Fund
 Lynn M. Hilton Foundation
 Stanley E. Kerr Scholarship Fund
 Ahmad al-Khalidy Scholarship Fund

Marie al-Khoury Scholarship Fund
 Mme. al-Khoury/Zurayk Scholarship
 Muhyiddine Kronfol Memorial Scholarship
 Mrs. Robert J. Lewis Memorial Award
 Farah Maloof Medical Scholarship
 Faris S. Maloof Memorial Scholarship
 Michel Najim Maloof Scholarship
 Medical School Scholarship (Latimer)
 Middle East Feed Co. Scholarship
 Stephen A. Miller Scholarship Fund
 Father Denis Mooney, O.F.M. Memorial
 Scholarship
 Salim Musalli Pasha Scholarship Fund
 E.F. Nickoley Nursing Scholarship
 Howard W. Page Scholarship Fund
 Palestine Students Aid Fund
 Francis Asbury Palmer Fund
 Ralph M. Parsons Scholarship
 Pilgrim Scholarship Fund
 President's Aid Fund for Students
 (Heller Scholarship)
 Proctor and Gamble Scholarship

Propeller Club of Beirut Scholarship
 Hazimeh S. Rasi Scholarship
 Mrs. J.C. Rea Scholarship Fund

Designated for

Syrian Orthodox students from Alep-
 po in financial need
 Chemistry student
 Chemistry student
 Any needy and qualified student
 Nursing students
 Arab student in Fine Arts
 Students in Nursing
 Qualified student from Douma
 Baha'i students
 Student in History or Arab Studies
 Needy Lebanese student
 Needy students from the Fuleihan
 family
 Palestinian student
 Palestinian Arts and Sciences student
 One scholarship in each of the follow-
 ing fields: Arts and Sciences, Educa-
 tion, Engineering and/or Agricul-
 ture; Graduate student in Arts and
 Sciences, Engineering and/or Agri-
 culture
 Student in Pharmacy
 Palestinian refugees from Jcrdan
 Medical student
 Palestinian students in Arts and
 Sciences
 Fine Arts students
 Students excelling in Social Sciences
 Needy Lebanese Medical student
 Metn Sophomore student
 Medical student
 Arab student
 Lebanese student in Arts and Sciences
 Medical students
 Lebanesestudent in Animal Production
 Most outstanding Freshman student
 Lebanese Catholic student

Any needy and qualified student
 Students in School of Nursing
 Students in Engineering
 Palestinian students

Any needy and qualified student

Outstanding Senior Arab student in
 Business Administration
 Nursing student
 Any needy and qualified student
 Any needy and qualified student

Fund

Thomas Righter Scholarship
 Farid Sa'd Scholarship Fund
 Mrs Subhi M. Sadi Scholarship
 Fuad al-Said Scholarship Fund
 Asma Sayyour Scholarship Fund
 Shaheen Bros. Scholarship Fund
 Selma Shaheen Nursing Scholarship
 Dr. Michael A. Shahid Scholarship
 Shehadeh A. Shehadeh Scholarship
 Jabir Shibli Scholarship Fund
 Squibb Middle East Scholarship
 Khaled Thabet Scholarship
 Vale-Asche Foundation Scholarship
 Dr. Samuel E. White (Waheed) Scholarship
 Habib Yared Scholarship Fund
 Khaled al-Yashruti Memorial Scholarship
 Julie Ziadeh Scholarship Fund

Designated for

Nursing student from Ramallah
 Arab Graduate students in Science or Technology
 Fellowship for future teachers
 Students from Makassed Schools in Beirut
 Greek Orthodox - Girl student
 Students from the city or district of Ramallah
 Nursing student
 Arts and Sciences students from Syria
 Student in Agriculture, Chemistry, Engineering, Graduate Center for M.E. Studies or Medicine; preferably a woman student
 Lebanese students from Bteghrine
 Medical and Pharmacy students
 Lebanese student in Arts & Sciences
 Women students
 Lebanese students in Arts & Sciences, Engineering or Medicine
 Needy students from Rachaya or the Beka'a
 Medical students studying neurological diseases
 Any needy and qualified student

Scholarship Loans

Armenian Women's Educational Club
 Mary Crawford Loan Fund
 Cruikshank Fund
 Ramzi Fawzi Daouk Memorial Loan Fund
 Dean's Loan Fund for Agricultural Students
 Dean's Loan Fund for Engineering Students
 Dhahran Women's Group Fund
 Dikranian Loan Fund
 Dr. Harry G. Dorman Memorial Loan Fund
 Donabedian Fund
 Helen Lewis Goodyear Memorial Fund
 Joseph Haddad Loan Fund
 John F. Kennedy Memorial Fund
 George M. Mardikian Loan Fund
 Mathematics Fund
 Zein Mayassi Loan Fund
 Loan Fund for the Education of M.E. Arab Nurses
 Medical Faculties Alumni Fund
 Medical School Scholarship Fund
 Medical Students Society
 F.K. Mitri Loan and Scholarship Fund

Nursing students
 Nursing students
 Nursing students
 Students in Civil Engineering
 Agriculture students
 Engineering and Architecture students
 Nursing students
 Nursing students
 Medical students from the M.E.
 Armenian students in Nursing
 Nursing students
 Any needy and qualified student
 Graduate Center for M. E. Studies students: any nationality
 Needy Armenian students
 Mathematics students
 Palestinian students in Engineering
 Nursing students
 Medical students
 General
 Medical students
 Any needy and qualified Lebanese student

Fund	Designated for
Elizabeth Moser Student Nurses Fund	Nursing students
Karim W. Nasser Educational Loan Fund	Any needy and qualified student
Nursing Scholarship	General
Palestine Student Aid Loan Fund	Palestinian students
Pharmaceutical Society Loan Fund	Pharmacy students
Anna Amina Saadi Fund	Women students
Hasib Sabbagh Student Loan Fund	Engineering students
Nikula Shaheen Student Loan Fund	Any needy and qualified student
Student Nurses Fund - Alumni Branch	Nursing students
U.S. Omen	Senior students
Jane E. Van Zandt Loan Fund	Nursing students

Emergency Loans

Dean's Loan Fund	Any student
Dean's Loan Fund for Agricultural students	Agriculture students
Dean's Loan Fund for Engineering students	Engineering students
Engineering Students Society Loan Fund	Engineering students
Hart Fund	Nursing students
Papazian Fund	Nursing students
Skidmore College Fund	Nursing students
Student Aid Fund - C.W.L.	Any student

LIST OF UNIVERSITY PRIZES AND AWARDS

Murad al-Akl Literary Awards: First prize \$ 50 and second prize \$ 30 are awarded on the basis of an essay, speech or debate contest to two contributions on the subject, "How I can serve my fellow man".

Philip Chidiac Prize: \$71 is awarded to students in the School of Medicine.

Mary Crawford Award: L. Leb. 100 is awarded each year to the senior student in the School of Nursing who meets the criteria for selection as "Miss Nightingale".

Edgecombe Memorial Prize: L. Leb. 100 is awarded each year to the outstanding student in Third Year Agriculture.

Philip K. Hitti Prize: Awarded in books to the senior student in the School of Arts and Sciences who, in the judgement of the President of the University, the Dean of the School, and the Chairman of the Department concerned, exemplifies in his academic career the scholarly spirit of the University at its best.

Mrs. Robert J. Lewis Memorial Award: For the best paper written during the current year on Neuro-Science.

Franklin Thomas Moore - Ethel Jessup Memorial Prize: Established by the children and friends of Dr. and Mrs. Franklin T. Moore; awarded to the senior medical student who has shown the highest proficiency in Obstetrics and Gynecology or lacking such, in any Department, who has shown in his personal life a dedication to humanity, a zeal for truth, and a belief in God.

Penrose Award: Non-cash honorary awards made on the basis of scholarship, character, leadership and contribution to University life to the outstanding graduate of each Faculty. The awards are in honor of the late Dr. Stephen Penrose, who served as President of the American University of Beirut from September 1948 until his sudden death on December 9, 1954.

Saba Co. Award: Annual cash award granted to the Lebanese senior student with the highest average in Accounting.

FEES AND EXPENSES

The American University of Beirut is a non-profit institution. The tuition fee and other charges which each student pays represent approximately 15% of the total cost of the student's education. The remaining 85% is provided by income from the University's Endowment Fund, gifts and grants from foundations and corporations interested in the higher education of the youth of the Middle East, and gifts from alumni and friends of the University throughout the world. The charge to the students is kept at the lowest possible minimum consistent with high quality instruction and adequate facilities.

All universities are facing serious financial problems because of the additional costs of higher education. The University reserves the right to change any or all fees at any time without prior notice. Such changes will be applicable to students currently registered in the University as well as to new students.

Students will not be permitted to enter classes at the beginning of the term until their fees are paid or special arrangements have been made with the University Comptroller.

All fees are quoted in Lebanese pounds. U.S. \$1 is approximately equivalent to L. Leb. 3.05 and Sterling £1 to L. Leb. 8.04.

Administrative Fee. An administrative fee of L. Leb. 450 per year per student is charged to sponsors of bursary students. This fee is based upon the special services rendered to this group of students by the University on behalf of the sponsoring government, agency or corporation.

Deposit. A general deposit of L. Leb. 100 is required initially of every student enrolling in the University. This deposit is held until the student graduates or discontinues his course of study, at which time the deposit, less any indebtedness, will be returned.

Entrance Examination Fees. The fee for each separate examination is L. Leb. 15, and this fee is entirely separate from the University Application Fee of L. Leb. 25 which is paid to the Office of the Registrar at the time of application. Examination fees are paid to the Office of Tests and Measurements at the time the candidate arranges to take entrance examinations. Examination fees should be paid not later than one week before the examination date. A penalty fee of L. Leb. 10 per examination is required when late examination fees are accepted, but it is not always possible to accept late examination applications.

Food Service Fees. The cost of food per semester for students using the University's self-service cafeteria and restaurant ranges from L. Leb. 390 to L. Leb. 570, depending upon the individual student's needs. All student nurses receive free room, food and laundry.

Hospitalization Insurance Fees. The Hospitalization Insurance Plan fee for students is separate from the tuition fee. All students are required to enroll in the Hospitalization Insurance Plan. The fee for 12 months beginning with October is L. Leb. 52, for one semester and one summer session beginning with February is L. Leb. 39, and for one summer session is L. Leb. 26. A married student will have the option of including his spouse and children at additional fees as outlined in the Regulations for the Hospitalization Insurance Plan.

Residence Fees. The residence fee depends upon the type of room the candidate desires. For men students it is normally L. Leb. 470 per semester. For women students it is L. Leb. 470 or 522.50 per semester. All student nurses receive free room, food and laundry.

Tuition Fees. The following tables give the tuition fees for each semester and for the summer session, by Faculties and Schools. The fees cover tuition, and the formal service and graduation fees. They do not cover fees for special services, books, supplies, athletic equipment, bedding, board or room.

Manner of Payment. All bank checks and money orders should be made payable to the American University of Beirut and sent directly to the Comptroller. Any funds received in excess of previously listed charges for a student will be paid by the University to the student according to instructions received from parents. Spending money and valuables should be deposited with the Comptroller.

Withdrawals. In the event a student withdraws before classes begin — 75% tuition refund.

In the event a student withdraws for justifiable reasons after his registration the following refund schedule will be applied:

Withdrawal during first week of term — 50% of tuition.

Withdrawal during second week of term — 25% of tuition.

No refund of term fees will be made for withdrawals after the second week. The unused portion of the food charge will be refunded. No refund will be made of the room charge or fees for special services rendered to students.

Incidental Expenses. Our estimate of incidental expenses for books, stationery supplies and laundry ranges from L. Leb. 400 to L. Leb. 800 per academic year, depending upon the course for which the student registers. Expenses for travel, clothing and spending money are left for parents to calculate.

FACULTY OF ARTS AND SCIENCES			
	Tuition Fees in Lebanese Pounds		
	First Semester	Second Semester	Summer Session
Undergraduate and Special Students			
12 or more credits per semester	910	910	—
6 to 11 credits per semester or summer session	635	635	635
5 or less credits per semester or summer session	400	400	400
University Orientation Program	1500	1500	810
Auditors—per credit hour	50	50	50
Graduate Students			
Per course credit hour ¹	88	88	88
Resident fee for AUB students registered for thesis only ¹	110	110	110
Resident fee for non-AUB students registered for thesis only ²	530	530	530
All fees for each semester and for the summer session are payable on the day of registration.			

1. The fees for graduate study¹ are for course work only. The rate is the same for undergraduate courses also. No charge is made for thesis work which is taken concurrently with course work. A resident fee of L. Leb. 110 per semester or term is charged to AUB graduate students who register as students for the thesis or project only and who continue to utilize the University's facilities while completing the thesis or project requirements.

2. The resident fee of L. Leb. 530 per semester or term is charged to non-AUB students working at this University on theses at other universities.

FACULTIES OF MEDICAL SCIENCES			
	Tuition Fees in Lebanese Pounds		
	First Semester	Second Semester	Summer Session
School of Medicine			
First, Second, Third and Fourth Years	1415	1415	—
Fifth Year ¹	—	—	55
School of Pharmacy			
All classes	1000	1000	—
Supervision fee for practical experience ²	55	55	55
School of Public Health — all programs			
Full Time	1415	1415	—
Part-Time — per credit hour	110	110	110
School of Nursing			
Diploma Program: First Year	150	150	—
Second and Third Years	75	75	—
B.S. Program: all classes ³	1000	1000	—
Post Basic Program	1000	1000	—
Special students			
As from beginning of second semester 1971-72	—	990.50	—
Graduate Students			
Per course credit hour ⁴	110	110	110
Resident fee for AUB students registered for thesis only ⁴	110	110	110
Resident fee for non-AUB students registered for thesis only ⁵	660	660	660
<p>The registration fee of L. Leb. 55 charged to the students of fifth year Medicine must be paid at the end of June. For fourth year Medicine the fees are payable on the day of registration in June and in February. For third year Medicine the fees are payable on the day of registration at the end of August and in February, for second year in September and in February, and for first year in October and in February.</p>			

1. Because fees in the School of Medicine have been collected during the first four years, the students of fifth year will be charged only a registration fee of Leb. 55.
2. Students who do not complete the academic and summer practical experience requirements for graduation within the prescribed four academic years will be required to pay a supervision fee of L. Leb. 55 per each three month period of practical experience work.
3. Part-time students may be accepted on a pre-arranged pro-rata basis per semester.
4. The fees for graduate study are for course work only. The rate is the same for undergraduate courses also. No charge is made for thesis work which is taken concurrently with course work. A resident fee of L. Leb. 110 per semester or term is charged to AUB graduate students who register as students for the thesis only and who continue to utilize the University's facilities while completing the thesis or project requirements.
5. The resident fee of L. Leb. 660 per semester or term is charged to non-AUB students working at this University on theses at other universities.

FACULTY OF ENGINEERING AND ARCHITECTURE			
	Tuition Fees in Lebanese Pounds		
	First Semester	Second Semester	Summer Session
Undergraduate and Special Students			
12 or more credits per semester	1050	1050	—
6 to 11 credits per semester or summer session	730	730	730
5 or less credits per semester or summer session	465	465	465
Graduate Students			
Per course credit hour ¹	110	110	110
Resident fee for AUB students registered for thesis only ¹	110	110	110
Resident fee for non-AUB students registered for thesis only ²	660	660	660
The fees for each semester and for the summer session are payable on the day of registration.			

FACULTY OF AGRICULTURAL SCIENCES			
	Tuition Fees in Lebanese Pounds		
	First Semester	Second Semester	Summer Session
Undergraduate and Special Students			
12 or more credits per semester	1415	1415	—
6 to 11 credits per semester	980	980	—
5 or less credits per semester	615	615	—
Technical Vocational Training	1415	1415	—
Graduate Students			
Per course credit hour ¹	110	110	110
Resident fee for AUB students registered for thesis only ¹	110	110	110
Resident fee for non-AUB students registered for thesis only ²	660	660	660
The fees for each semester and for the summer session for undergraduate and special students are payable on the day of registration in October and in February. The fees of graduate students for each semester and for the summer session are payable on the day of registration.			

1. The fees for graduate study are for course work only. The rate is the same for undergraduate courses also. No charge is made for thesis work which is taken concurrently with course work. A resident fee of L. Leb. 110 per semester or term is charged to AUB graduate students who register as students for the thesis only and who continue to utilize the University's facilities while completing the thesis or project requirements.

2. The resident fee of L. Leb. 660 per semester or term is charged to non-AUB students working at this University on theses at other universities.





FACULTY OF ARTS AND SCIENCES

FACULTY OF ARTS AND SCIENCES

Faculty List 1971-1972

Edwin Terry Prothro, Ph.D., *Professor of Psychology, Dean.*
John Munro, Ph.D., *Professor of English, Associate Dean.*
Pierre Mourad, Ph.D., *Associate Professor of Physics, Assistant Dean.*
Michel Shamma'a, M.A., *Academic Advisor.*
Edmund Shahla, *Executive Officer.*

PROFESSORS EMERITI

Frayha, Anis K. - Ph.D., University of Chicago; *Semitic Studies.*
Himadeh, Said B. - M.A., Columbia University; *Economics.*
Jabbur, Jibrail S. - Ph.D., Princeton University; *Arabic.*
Katul, Jibrail M. - B.A., American University of Beirut; *Education.*
al-Makdisi, Anis I. - M.A., American University of Beirut; *Arabic.*
Scaife, Christopher H.O. - M.A., Oxford University; *English.*
Shahla, George D. - M.A., American University of Beirut; M.A., London University;
Education.
West, William A. - Ph.D., Princeton University; *Chemistry.*
Yazigi, Kamal K. - Ph.D., University of Chicago; *Arabic.*

PROFESSORS

- * Abbas, Ihsan - Ph.D., Cairo University; *Arabic.*
- * Abdul Karim, Aziz - Ph.D., Purdue University; *Chemistry.*
- * Babikian, Levon - Ph.D. University of Wisconsin; *Biology.*
- Badre, Albert - Ph.D., University of Iowa; *Economics (Visiting).*
- * Baramki, Dimitri - Ph.D., London University; *History and Archaeology (Curator of Museums).*
- Beydoun, Ziad - D.Phil., Oxford University; *Geology.*
- * Blackstone, Bernard - Litt.D., University of Cambridge; *English.*
- * Bruin, Frans - Ph.D., University of Amsterdam; *Physics (Director of Observatory).*
- * Butros, Joseph - Ph.D., Emory University; *Biology.*
- Capps, Jack - Ph.D., University of Pennsylvania; *English (Visiting).*
- * Carswell, John - A.R.C.A., Royal College of Arts, London; *Fine and Performing Arts.*
- * Cook, Daniel+ - Ph.D., University of California; *English and Linguistics.*
- * Diab, Lutfy - Ph.D., Oklahoma University; *Psychology.*
- * Diab, Muhammad - D.Sc., Rotterdam School of Economics; *Economics.*
- * Fakhry, Majid - Ph.D., Edinburgh University; *Philosophy.*
- * Frick, Arthur+ - M.S., University of Wisconsin; *Fine and Performing Arts.*
- * Ghul, Mahmud+ - Ph.D., University of London; *Arabic.*
- * Gordon, David - Ph.D., Princeton University; *History and Archaeology.*
- * Hanania, Farid - LL.B., Cambridge University; Barrister-at-Law; *Political Studies and Law.*
- * Hanania, George - Ph.D., Cambridge University; *Chemistry.*
- * Hawi, Khalil - Ph.D., Cambridge University; *Arabic.*
- * Heineken, Frederick - Ph.D., University of Amsterdam; *Physics.*
- * Hijab, Wasfi+ - Ph.D., University of Florida; *Mathematics.*
- * Issidorides, Costas - Ph.D., University of Iowa; *Chemistry.*
- Johnstone, Henry - Ph.D., Harvard University; *Philosophy (Fulbright Hayes Visiting Professor).*

* On Tenure Appointment. + On Furlough or Leave.

- * Karam, Antoine - Dr.-ès-Lettres d'Etat, University of Paris; *Arabic*.
- * Kennedy, Edward - Ph.D., Lehigh University; *Mathematics*.
- * Khalidi, Walid - B. Litt., Oxford University; *Political Studies and Public Administration*.
- Malik, Charles - Ph.D., Harvard University; LL.D., Sc.D.; Litt.D.; L.H.D.; Phil.Dr. (Freiburg); *Philosophy (Distinguished Professor)*.
- * Melikian, Levon - Ph.D., University of Columbia; *Psychology*.
- * Mirhij, John - Ph.D., University of California; *Biology*.
- * Munro, John - Ph.D., Washington University; *English*.
- * Muwafi, Amin - Ph.D., University of Florida; *Mathematics*.
- * Najm, Muhammad+ - Ph.D., Cairo University; *Arabic*.
- * Prothro, E. Terry - Ph.D. Louisiana State University; *Psychology*.
- * Raven, Theodor+ - Dr.Sc., University of Utrecht; *Geology*.
- Rogers, Allen - Ph.D., University of Utah; *Geology (Visiting)*.
- * Salem, Elie - Ph.D., Johns Hopkins University; *Political Studies and Public Administration*.
- * Salibi, Kamal - Ph.D., London University; *History and Archaeology*.
- * Sarkis, Adib - Ph.D., Ohio State University; *Chemistry*.
- * Sayigh, Yusif - Ph.D., Johns Hopkins University; *Economics*.
- Snider, Paul - Ph.D., University of Iowa; *Journalism (Visiting)*.
- * Thabet, Samir - Ph.D., London University; *Chemistry*.
- * Yff, Peter - Ph.D., University of Illinois; *Mathematics*.
- * Yorkey, Richard - Ed.D., University of Michigan; *Education and Linguistics*.
- * Zahlan, Antoine - Ph.D., Syracuse University; *Physics*.
- * Zeine, Zeine - Ph.D., London University; *History and Archaeology*.
- * Ziadeh, Nicola - Ph.D., London University; *History and Archaeology*.
- * Zurayk, Costi+ - Ph.D., Princeton University; Litt.D., University of Michigan; *History and Archaeology (Distinguished Professor)*.

ASSOCIATE PROFESSORS

- * Ali, Jamil - B.S., London University; *Mathematics*.
- D'Amico, Jack - Ph.D., State University of New York; *English (Visiting)*.
- Anderson, Jack - Ph.D., Iowa State University; *Mathematics (Visiting)*.
- * Arnita, Salvador - M.I.C.C.S., London; *Fine and Performing Arts*.
- * Ashour, Isam+ - D.Sc., Netherlands School of Economics; *Business Administration*.
- * Awad, Elias - Ph.D., University of Washington; *Chemistry*.
- * Bashshur, Munir - Ph.D., University of Chicago; *Education*.
- * Batatu, John - Ph.D., Harvard University; *Political Studies and Public Administration*.
- * Bushrui, Suheil - Ph.D., Southampton University; *English*.
- * Cajoleas, Louis - Ph.D., Columbia University; *Education*.
- * Crow, Ralph+ - Ph.D., University of Michigan; *Political Studies and Public Administration*.
- Deeb, Samir - Ph.D., University of Illinois; *Biology*.
- Dobbyn, Michael - Ed.D., Columbia University; *Education and Linguistics*.
- * Ghattas, Emile+ - Ph.D., Columbia University; *Business Administration*.
- Goedicke, Thomas - D.Sc., University of North Carolina; *Geology*.
- Haddad, Fuad - Ph.D., University of Chicago; *Education*.
- * Haddadin, Makhlu+ - Ph.D., University of Colorado; *Chemistry*.
- * Hamdan, Mohammad - Ph.D., Sydney University; *Mathematics*.
- * Hanna, Azmi - Ph.D., Erlangen University; *Mathematics*.
- Hayden, Jack - Ph.D., Northwestern University; *Business Administration (Visiting)*.

* On Tenure Appointment. + On Furlough or Leave.

- Heymans, Peter - Ph.D., University of London; *Mathematics*.
 Hulings, Neil - Ph.D., Florida State University; *Biology*.
 * Ibish, Yusuf - Ph.D., Harvard University; *Political Studies and Public Administration*.
 * Iskandar, Adnan - Ph.D., American University, Washington; *Political Studies and Public Administration*.
 Jafri, Syed - Ph.D., London University; *Religious Studies*.
 Khalaf, Nadim - Ph.D., Princeton University; *Economics*.
 * Khalaf, Samir - Ph.D., Princeton University; *Sociology and Anthropology*.
 Khuri, Fuad+ - Ph.D., University of Oregon; *Sociology and Anthropology*.
 Makarim, Sami - Ph.D., University of Michigan; *Arabic*.
 * Makinson, David - D.Phil., Oxford University; *Philosophy*.
 Mavromatis, Harry - Ph.D., Princeton University; *Physics*.
 * McClain, John - Ph.D., Princeton University; *Physics*.
 Mikdashí, Zuhayr+ - B. Litt., Oxford University; *Business Administration*.
 * Mourad, Pierre - Ph.D., University of Paris; *Physics*.
 Naimy, Nadeem - Ph.D., Cambridge University; *Arabic*.
 Olmsted, John - Ph.D., University of California; *Chemistry*.
 * Ragier, Mary - Ph.D., University of California; *Mathematics*.
 Ryffel, Heinrich - Dr. Phil., Bern University; *Cultural Studies*.
 Saadeh, Ibrahim - Ph.D., University of California; *Education*.
 Shukla, Uma - Ph.D., Lucknow University; *Mathematics*.
 * Slade, Landry - Ph.D., University of Virginia; *Chemistry*.
 * Smith, Marcus+ - Ph.D., University of Wisconsin; *English*.
 * Tarazi, Fuad - Ph.D., Cairo University; *Arabic*.
 Vulgamore, Melvin - Ph.D., Boston University; *Cultural Studies (Visiting)*.
 * Ward, William - Ph.D., Brandeis University; *History and Archaeology*.
 Yaqub, Fawzi - Ph.D., Purdue University; *Mathematics*.
 * Zayid, Mahmud - Ph.D., Yale University; *History and Archaeology*.

SENIOR LECTURERS

- Dodd, Peter - Ph.D., Harvard University; *Sociology and Anthropology*.
 Harcourt, Hugh - Ph.D., University of Edinburgh; *Cultural Studies*.
 Praninskas, Jean - Ph.D., University of Illinois; *English and Linguistics*.
 Zarour, George - Ph.D., University of Wisconsin; *Education*.

ASSISTANT PROFESSORS

- Aly, Hamdy - Ph.D., University of Illinois; *Business Administration*.
 Alsleben, Brigitte - Ph. D., University of Göttingen; *German (Visiting)*.
 Avolizi, Robert - Ph.D., Syracuse University; *Biology*.
 Barakat, Halim - Ph.D., University of Michigan; *Sociology and Anthropology*.
 Basson, Philip - Ph.D., University of Missouri; *Biology*.
 Basson, Priscilla - Ph.D., Cornell University; *Sociology and Anthropology*.
 Billeh, Victor - Ph.D., University of Wisconsin; *Biology*.
 Bitar, Khalil+ - Ph.D., Yale University; *Physics*.
 Blackstone, Richard - Ph.D., Brown University; *Philosophy*.
 Boecker, Eberhard - Ph.D., University of Southampton; *German*.
 Braidi, Siham - Ph.D., Lehigh University; *Mathematics*.
 Bratton, Neil - Ph.D., Georgetown University; *English and Linguistics*.
 Chahabi, Ahmad.- Ph.D., University of Chicago; *Mathematics*.

* On Tenure Appointment. + On Furlough or Leave.

- Chimienti, John - Ph.D., Yale University; *Psychology*.
- Cook, Robert - Ph.D., University of California; *Chemistry*.
- Dajani, Nabil - Ph.D., University of Iowa; *Journalism*.
- De Wulf, Luc - Ph.D., Clark University; *Economics*.
- Dodd, Erica - Ph.D., University of London; *Cultural Studies*.
- Edwards, Lawrence - Ph.D., Harvard University; *Chemistry*.
- Eid, Nimr - Ph.D., University of Texas; *Business Administration*.
- Elliston, Peter - Ph.D., Monash University; *Physics*.
- Fraga, Robert - Ph.D., University of British Columbia; *Mathematics*.
- Fuleihan, Joseph - Ph.D., Iowa State University; *Economics*.
- Garrett, Stephen - Ph.D., University of Virginia; *Political Studies and Public Administration*.
- Ghandour, Marwan + - Ph.D., University of Illinois; *Economics*.
- Gorry, Thomas - Ph.D., Purdue University; *Psychology*.
- Gunderson, Gil - Ph.D., University of California; *Political Studies and Public Administration*.
- Haddad, Wadi' - Ph.D., University of Wisconsin; *Education*.
- Hassanein, Medhat - Ph.D., University of Pennsylvania; *Economics*.
- Hayes, Willis - Ph.D., University of California; *Biology*.
- Ibrahim, Ibrahim - D. Phil., Oxford University; *Political Studies and Public Administration*.
- Kafescioglu, Ismail - Ph.D., Case Western Reserve University; *Geology*.
- Karaoglan, Roy - Ph.D., Columbia University; *Economics*.
- Khairallah, As'ad - Ph.D., Princeton University; *Arabic*.
- Khairallah, George - Ph.D., Columbia University; *English and European Languages and Literature*.
- Khalidi, Tarif - Ph.D., University of Chicago; *History and Archaeology*.
- Khalil, Zohel - Ph.D., Moscow University; *Mathematics*.
- Letterie, Jacobus - Dip. of International Studies, Johns Hopkins University; *Political Studies and Public Administration*.
- Livingstone, John - Ph.D., Princeton University; *Cultural Studies*.
- Lowe, J. Edgar - *English*.
- Madec, Marie H  l  ne - Agr  gation de Lettres Modernes, University of Paris; *French (Visiting)*.
- Makemson, John - Ph.D., Washington State University; *Biology*.
- Melikian, Anahid - Ph.D., University of Wisconsin; *English*.
- Midani, Ayman - Ph.D., University of Carolina; *Business Administration*.
- Mohapatra, Ram - Ph.D., University of Jabalpur; *Mathematics*.
- Moracco, John - Ph.D., University of Iowa; *Education*.
- Murphy, Richard - Ph.D., University of Texas; *English and Cultural Studies*.
- Namek, Yakub - Ph.D., University of Wisconsin; *Education*.
- Nasr, Nafhat - Ph.D., Vanderbilt University; *Political Studies and Public Administration*.
- Obermeyer, Gerald - Ph.D., Indiana University; *Sociology and Anthropology*.
- Olsen, Gordon - M.A., Columbia University; *Fine and Performing Arts*.
- Parsons, Brian - M.B.A., University of Chicago; *Business Administration*.
- Read-Collins, Nicholas - Dip. Ed., London University; *English*.
- Richard, Sandra - Ph.D.; University of Texas; *Business Administration*.
- Roy, Delwin - Ph.D., Purdue University; *Economics (Visiting)*.
- Saegert, Joel - Ph.D., University of Texas; *Psychology*.
- Sara, Nathir - Ph.D., University of Illinois; *Education*.
- Schilcher, Karl - Dr. Phil., University of Vienna; *Physics*.
- Scott, Elizabeth - M.A., Columbia University; *English*.

+ On Furlough or Leave.

*Scott, Richard - M.A., Harvard University; *Philosophy*.
 Seeden, Helga - Ph.D., University of London; *Cultural Studies and History and Archaeology*.
 Seikaly, Samir - Ph.D., University of London; *Cultural Studies and History and Archaeology*.
 Shaath, Nabeel - Ph.D., University of Pennsylvania; *Business Administration*.
 Shibl, Yusuf - Ph.D., University of California; *Business Administration*.
 Singh, Bhajan - D. Phil., University of Sussex; *Physics*.
 Sirhan, Ghazi - Ph.D., North Carolina State University; *Economics*.
 Smith, Peter - M.F.A., Pratt Institute; *Fine and Performing Arts*.
 Soghikian, Juanita - M.A., Columbia University; *Education*.
 Somoza, Eugene - Ph.D., University of Cincinnati; *Physics*.
 Taky, Ziyad - Ph.D., American University, Washington; *Business Administration*.
 Tang, I. Ming - Ph.D., University of Cincinnati; *Physics*.
 Tayim, Hassan - Ph.D., University of Illinois; *Chemistry*.
 Venkitasubramanian, Calicut S. - Ph.D., Queen's University, Kingston; *Geology*.
 Watson, Gary - Ph.D., Cornell University; *Physics*.

LECTURERS

Abdo, Daud - Ph.D., University of Illinois; *Education*.
 Antippa, Faizeh - M.A., American University of Beirut; *Education*.
 Bashir, Iskandar - D.P.A., Syracuse University; *Political Studies and Public Administration*.
 Bross, Jurgen - State Exam, University of Freiburg; *German*.
 Buheiry, Marwan - M.A., American University of Beirut; *Cultural Studies and History and Archaeology*.
 Chamieh, Suhayl - M.B.A., American University of Beirut; *Business Administration*.
 Dajani, Burhan - M.A., American University of Beirut; *Business Administration*.
 Etinoff, Nedko - Th.B., Near East School of Theology, Beirut; *Fine and Performing Arts*.
 Fistere, John - B.A., Colgate University; *Journalism*.
 Ghantus, Elias - M.A., American University of Beirut; *Economics*.
 Hajjar, Nadim - Ph.D., University of California; *Economics*.
 Hallab, Mary - Ph.D., Louisiana State University; *English*.
 Hovey, Allen - B.M., Boston University; *Fine and Performing Arts*.
 Kankashian, Ibrahim - B.A., University of Leicester; *English*.
 Kouymjian, Dickran - Ph.D., Columbia University; *History and Archaeology*.
 Krüger, Michael - M.A., Justus Liebig Universität; *German*.
 Marmura, Aziz - M.B.A., University of Michigan; *Business Administration*.
 Medawar, George - Ph.D., Cornell University; *Economics*.
 Milecki, Mary Ann - M.A., Columbia University; *English*.
 Montégu, John - Ph.D., Harvard University; *Religious Studies*.
 Oshagan, Vahe - Dr.-ès-Lettres d'Etat, University of Paris, *Cultural Studies*.
 Proust, Daniel - Licence-ès-Lettres, Lyon University; *French*.
 Saidah, Roger - Dip., Ecole du Louvre; *History and Archaeology*.
 Shebaya, Peter - M.A., University of Michigan; *Fine and Performing Arts and Cultural Studies*.
 Taky Deen, Diana - B.A., American University of Beirut; *Fine and Performing Arts*.
 Taylor, George - Dip. of Teaching, Eastbourne College; *English*.
 Yaktine, Umayma - Ph.D., University of London; *Psychology*.
 Zurayk, Ithām - Ph.D., Columbia University; *Cultural Studies and Physics*.

INSTRUCTORS

Abboud, Shehadeh - M.A., American University of Beirut ; *English*.
 Alamuddin, Nada - M.A., American University of Beirut ; *Psychology*.
 Amyuni, Mona - M.A., American University of Beirut ; *French*.
 Andrews, John - Dip. Ed., University of London ; *English*.
 Aronson, Dennis - M.A., American University of Beirut ; *Linguistics*.
 Bazzi, Tarif - M.A., American University of Beirut ; *Arabic*.
 Bender, Mildred - M.A., American University of Beirut ; *English*.
 Clark, John - B.A., University of Sussex ; *English*.
 Darwish, Orpha - M.S.E., Southern Illinois University ; *English*.
 Fadous, Raymond - M.S., Michigan State University ; *Mathematics*.
 Fraga, Jean - B.A., University of British Columbia ; *English*.
 Gammon, Allister - B.A., Mount Allison University ; *Cultural Studies*.
 Ghusayni, Rauf - M.A., American University of Beirut ; *Education*.
 Gordon, Ann - M.A., American University of Beirut ; *English*.
 Haddad, Mona - M.A., American University of Beirut ; *Education*.
 Haydar, Adnan - M.A., American University of Beirut ; *English*.
 Jarrar, Adil - Ph.D., American University of Beirut ; *Chemistry*.
 Kassab, Naim - M.A., American University of Beirut ; *Arabic*.
 Khairallah, Liubitzia - M.A., American University of Beirut ; *Cultural Studies*.
 Kurani, David - B.A., American University of Beirut ; *Fine and Performing Arts*.
 Manuelian, Peter - M.A., Rutgers University ; *English*.
 Maple, Robert - M.A., University of Illinois ; *English*.
 Mutlak, Albert - Ph.D., American University of Beirut ; *Arabic*.
 Sabri, Anne Mary - M.A., American University of Beirut ; *English*.
 Salam, Josephine - M.A., Radcliffe College ; *English*.
 Satamian, Krikor - B.A., American University of Beirut ; *Fine and Performing Arts*.
 Sims, Ottley - B.A., University of Hawaii ; *English*.
 Siniora, Fuad - M.B.A., American University of Beirut ; *Business Administration*.
 Tumeh, Edmund - M.A., American University of Beirut ; *Cultural Studies*.
 Vassilian, Asbed - M.S., American University of Beirut ; *Chemistry*.
 Woosnam-Mills, Michael - M.A., American University of Beirut ; *English*.
 Yaqub, Dorothy - M.A., University of California ; *English*.
 Zahawi, Selma - M.A., Columbia University ; *Cultural Studies*.

RESEARCH ASSOCIATES, ASSISTANTS AND FELLOWS

Abu Lughud, Janet - Ph.D., University of Massachusetts ; *Sociology and Anthropology (Associate)*.
 Austin, Michael - D.Phil., Oxford University ; *History and Archaeology (Associate)*.
 Atallah, May - Licence, Lebanese University ; *Biology (Research Assistant)*.
 Azzam, Siham - B.A., American University of Beirut ; *Arabic (Research Assistant)*.
 Badre, Leila - M.A., American University of Beirut ; *History and Archaeology (Research Assistant)*.
 Ellezian, Lena - B.S., American University of Beirut ; *Biology (Research Assistant)*.
 Haan, Oswald - Dr., University of Heidelberg ; *Physics (Research Associate)*.
 Hajenian, Hermineh - B.S., American University of Beirut ; *Biology (Research Assistant)*.
 Hajjar, Olga - M.A., American University of Beirut ; *Graduate Center for Middle Eastern Studies (Research Assistant)*.
 Lakkis, Sami - Doctorat, University of Paris ; *Biology (Research Associate)*.
 Mendenhall, George - Ph.D., Johns Hopkins University ; *History and Archaeology (Visiting Research Professor)*.

Murad, Amal - B.S., American University of Beirut; *Biology (Research Assistant)*.
Naoum, Izuddin - M.S., University of Knoxville; *Mathematics (Associate)*.
Nayir, Rose - M.A., American University of Beirut; *Graduate Program in Development Administration (Research Assistant)*.
Tabbara, Jumana - B.A., American University of Beirut; *Graduate Program in Development Administration (Research Assistant)*.
Uwaydah, May - M.A., American University of Beirut; *Linguistics (Research Assistant)*.
Wanna, Suad - M.S., American University of Beirut; *Biology (Research Assistant)*.

General Information

The Faculty of Arts and Sciences offers a variety of educational programs planned for the needs and interests of individual students. The foundation of the regular programs is a balanced, comprehensive and liberal education that aims not only to broaden the awareness of each student but also to develop in him intellectual habits that enable him to think for himself. This liberal education emphasizes the importance of a disinterested search for truth as opposed to the blind acceptance of authority, tradition and prejudice; and to this end the student's experience in the classroom is supplemented by participation in the full life of the University community, which may involve him in extracurricular lectures, concerts and plays, student-directed activities and a large number of sports. These experiences, it is believed, will help to create balanced and educated men and women who are prepared for lives of leadership in their own communities.

Each student completes, in addition to this basic liberal education, a program of intensified study in a specialized subject, either as a preparation for professional training or as professional training in its own right.

Both the specialized and liberal programs of the Faculty aim to develop maturity of thought and an appreciative understanding of the value and techniques of research, experiment and analysis; for such an understanding is essential to all independent and creative thought, and will lead no more to the undermining of national loyalties than to bigotry. Whatever their special field, graduates of the Faculty of Arts and Sciences should be able to appreciate the values of both Near Eastern and Western civilizations, and to select with discrimination those aspects which can best contribute to the culture and development of their own countries.

ADMISSION

For complete and detailed information regarding admission to the University, including certificates recognized, see pages 17 to 27 in the section on Admission under General Information at the beginning of the catalogue.

The specific requirements for admission to the Freshman Class are found on pages 19 to 23, to the Sophomore Class on pages 23 to 24, to Advanced Standing on pages 24 to 26, and to Graduate Work in the section on Admissions in the special chapter at the end of the catalogue entitled Graduate Study.

CATEGORIES OF STUDENTS

1. Full-Time Students

To be considered full-time, a student must carry a minimum load of 12 credits per semester.

The normal schedule of *Freshman* students each semester is 15 credits plus

Physical Education. Freshman students may be permitted by action of the Administrative Committee to take less than the full program; but in this case they will be required to complete the Freshman program, together with any courses they have failed, in the following year.

During the *Sophomore, Junior* and *Senior* years, the normal schedule for full-time students each semester is from 12 to 18 credits. The student and his Advisor will decide on the maximum number of credits that can be carried. (The suggested limit of 18 credits is not absolute, but merely an indication to Advisors of what is a normal load). Students in the *Sophomore, Junior* and *Senior* classes carrying more than 12 credits may (with their Advisor's permission) reduce their load to 12 credits, provided they do so two weeks before the beginning of the examinations. Full-time students who wish to reduce their schedule to less than 12 credits, or who wish to drop a required course, must apply to the Administrative Committee for approval.

2. Part-Time and Special Students

This category includes part-time and unclassified students allowed to work for degrees; holders of degrees but not working for a higher degree; and students who follow special programs of study not leading to degrees from this University. All such students must carry a minimum of six credits per semester; must meet the University admission requirements; and must secure the approval of either the Administrative Committee or the Graduate Committee before admission to part-time or special status.

3. Auditors

Auditors are admitted to certain courses on payment of the special auditor's fee, and on obtaining the permission of the professor in charge of the course and of the Registrar. Auditors must meet the admission requirements of the University, but this requirement may be waived by the Administrative Committee in the case of a mature person who has been working for a number of years. The University does not recognize auditors as students; they may not take examinations, and the Registrar does not keep a record of their courses and thus cannot issue to them any certificates.

PROGRAMS OF STUDY

1. Undergraduate Programs

Students may select one of two academic paths; the first, normally involving four years of study beginning with the Freshman year, is primarily a liberal education. The second is essentially professional or pre-professional training, preparing students for admission to the Faculties of Agricultural Sciences and Engineering and Architecture, and the Schools of Medicine, Pharmacy and Public Health. Students enrolled in the pre-professional programs are required to complete basic courses of liberal education as a part of their preparation for the professional schools.

Students entering the Faculty of Arts and Sciences, except those admitted as special students or auditors, must select one of the following programs:

- (a) Bachelor of Arts. Four years.
- (b) Bachelor of Science. Four years.
- (c) Bachelor of Business Administration. Four years.
- (d) Pre-Medical. An interdepartmental program in Biology and Chemistry, preparing students to meet the minimum requirements for admission to the

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School of Medicine but without guaranteeing acceptance. Three years.

(e) Pre-Pharmacy; pre-Public Health; pre-Engineering and Architecture; pre-Agriculture. One year (the Freshman Science program).

(f) The University Orientation Program. For students who meet the AUB admission requirements except in English Language. See special section entitled Institutes, Centers and Special Programs, following descriptions of Arts and Sciences Departments and their offerings.

2. Graduate Study

Full information and general requirements for graduate study are found in the special chapter at the end of this catalogue entitled Graduate Study.

REGULAR FRESHMAN PROGRAM

On admission to the Freshman class, a student must enroll in either the Arts or the Science program; although exceptional programs are possible if approved by the Administrative Committee.

1. Freshman Arts

The Freshman Arts program, the completion of which entitles a student to promotion to Sophomore Arts, consists of 30 credits plus Physical Education. Successful completion of the program demands a grade of 70 or more in at least 12 credits; and an average grade of 70 or more in Arabic 101 and 102 or the elective course replacing Arabic for non-Arabic speaking students; or in English 103 and 104; or in English 105 and 106; or in History 101 and 102.

Arabic 101 and 102 are required courses for all students whose native language is Arabic; others may select in place of Arabic any courses open to Freshman students.

Freshman Arts students may select Mathematics 101 and 102 only if they achieve in the entrance examination in Mathematics the minimum score required for this course, or if they secure the approval of the Department of Mathematics.

The following are the required courses in the regular Freshman Arts program:

	Semes- ters	Credit Hours
Arabic 101 and 102 (for Arabic-speaking students) ¹	2	6
English 103 and 104, or 105 and 106	2	8
History 101 and 102	2	6
Biology 103 and 104, or Chemistry 101 and 102, or Physics 103 and 204	2	8
One elective	1	3
Physical Education 001 and 002, or 003 and 004	2	—

2. Freshman Science

The regular Freshman Science program, the completion of which entitles the student to promotion to Sophomore Science, consists of 30 credits plus Physical Education. Successful completion of this program includes attaining a grade of 70 or more in at least 12 credits; and an average grade of 70 or more in Chemistry

1. Non-Arabic speaking students take an elective instead of Arabic.

101 and 201, or Mathematics 101 and 102, or Physics 101 and 102.

The Arabic requirements for students whose native language is Arabic (or permitted elective for other students) are the same as for Freshman Arts.

The following are the required courses in the regular Freshman Science program :

	Semes- ters	Credit Hours
Arabic 101 and 102 (for Arabic-speaking students) ¹	2	6
English 103 and 104, or 105 and 106	2	8
Mathematics 101 and 102	2	8
One of the following :		
Chemistry 101 and 201	2	9
<i>or</i> Physics 101 and 102	2	10
Physical Education 001 and 002, or 003 and 004	2	—
<i>Special requirements for those planning to :</i>		
<i>major</i> in Biology, Chemistry	Chemistry	101,201
<i>major</i> in Physics	Physics	101,102
<i>enter</i> Medicine, Pharmacy, Public Health, Agricultural Sciences	Chemistry	101,201
<i>enter</i> Engineering and Architecture	Chemistry	101,201
	<i>and</i> Physics	101,102

GRADUATION REQUIREMENTS

1. Degree of Bachelor of Arts, Bachelor of Science, Bachelor of Business Administration.

The following are the graduation requirements for the degrees of B.A., B.S., and B.B.A. :

- (a) A minimum of eight semesters residence beginning with the Freshman class, or six semesters beginning with the Sophomore class, at recognized institutions of higher learning, provided at least three semesters and 36 credits are completed at AUB. For purposes of this requirement, two summer sessions shall be considered equivalent to one semester ;
- (b) A minimum of 120 credits for students who enter as Freshmen and 90 credits for students who enter as Sophomores. With the approval of the Curriculum Committee, Departments may establish programs that exceed these minimum credit requirements ;
- (c) A minimum of 30 credits in courses numbered 210 or above in the major Department with a cumulative average of 70 or more, plus any additional requirements set by the Department ; or the requirements of other types of major programs as described in section 2 following ;
- (d) The following courses or their equivalent : English 201 ², the Library Orienta-

1. Non-Arabic speaking students take an elective instead of Arabic. Such students, if they plan to major in Chemistry, are advised to take Chemistry 102 and 201 and Physics 101 and 102.

2. See note to description of English 201 below, p. 77.

ted on the Northern Joint Matriculation Board (the Universities of Manchester, Liverpool, Leeds, Sheffield and Birmingham).

5. Graduation with Distinction

In order to graduate *with distinction* a student must have an average of 85 or higher in his Junior and Senior years and be recommended by his Department for distinction. In order to graduate *with high distinction* a student must have an average of 90 or higher in his Junior and Senior years and must be recommended by his Department for high distinction. In both cases the Department's recommendation shall be based on the student's performance in his program of directed study: see 6 below.

6. Directed Study

All students with averages in their major of 82 or above at the beginning of their Senior year shall be eligible to elect a course of directed study. Students with averages lower than 82 may be admitted to directed study at the discretion of the Department.

Students who elect a course of directed study will choose their Senior courses in consultation with a Faculty member selected by the student with approval of the Department. Among these courses may be a tutorial of from three to six credits directed by the Faculty member. This tutorial may consist of independent research, original creative compositions, or directed reading, and will include the presentation of a report or thesis on the work.

ACADEMIC RULES AND REGULATIONS

1. Classification of Students

An undergraduate student shall be considered to have completed a class when he has taken and passed 30 or more credits beyond the requirements for the previous class. However, a student who registers in October lacking 6 or fewer credits for completion of a class shall be registered in the next higher class.

A student will not be granted a certificate stating that he has completed a class until he has completed the specified courses in the regular program for that class and has acquired the requisite number of credits. The credit requirements are as follows:

- (a) for the completion of the Freshman class: 30 credits;
- (b) for the completion of the Sophomore class: 60 credits;
- (c) for the completion of the Junior class: 90 credits.

2. Correct Use of Language

Facility in the clear, correct and responsible use of language is a basic requirement for graduation to any degree.

Grades on papers (term papers, essays or examinations) that are ill-written, no matter what the course, may be lowered for the quality of the writing alone.

The final grade in any course may be lowered for consistently substandard written or oral expression; in extreme cases a failing grade may be given for this reason alone.

3. Grades, Incomplete Grades, Make-up Examinations

(a) GRADING SYSTEM

In the Faculty of Arts and Sciences the following grading system for undergraduate students is used: 90-100 (A) Excellent; 80-85 (B) Good; 70-75 (C) Fair; 60-65 (D) Weak; 55 (F) Failing; I Incomplete; IF Incomplete Failed; W Withdrew; P Pass; F Fail; X no grade reported for the course.

As of the first semester of 1971-72, grades will be expressed in multiples of 5 (100, 95, 90... 45, 40).

To be placed on the Dean's Honor List, a student must: (1) be full-time; (2) have an average of at least 80; (3) rank in the top 10% of his class; (4) have no failing grades in courses which carry credit; (5) have no incomplete grades; (6) have no disciplinary action against him; and (7) be deemed worthy by the Dean to be on the Honor List.

***(b) INCOMPLETE GRADES**

A student who fails to complete the requirements for his courses on time will lose credit for those courses.

First Semester Courses. Incomplete grades must be made up before the end of the second semester of the same year.

Second Semester and Summer Session Courses. Incomplete grades must be made up before the beginning of the following academic year.

(c) MAKE-UP FINAL EXAMINATIONS

These are given only to those students who have valid excuses for having failed to take the final examinations.

First Semester Courses. Make-up final examinations are given only during the first two weeks of the second semester of the same academic year.

Second Semester Courses. Make-up final examinations are given during two periods only: 1) within two weeks after the final examination of the second semester, provided teachers are available and are willing to give the examinations; 2) at the beginning of the following academic year.

Summer Session Courses. Make-up final examinations are given at the beginning of the following academic year.

4. Attendance at and Withdrawal from Courses

(a) Students are expected to attend all classes and laboratory sessions. Absence of a student, whether excused or not, from any class or laboratory session, does not excuse the student from his responsibility for the work done at that time or for any announcements made during his absence.

(b) Laboratory sessions: Students may not absent themselves from laboratory sessions unless they present an excuse from the Dean's Office. In no case can a student be excused from laboratory requirements; all missed laboratory work must be made up by arrangement with the Department.

(c) Examinations and quizzes:

(1) A student who misses an *unannounced* examination or quiz may be permitted or be required, at the discretion of the Department, to take a make-up examination.

If no make-up is given, the student's evaluation will be determined by the Department.

(2) An examination or quiz may be announced during any class period preceding the one during which an examination is given. Students may not absent themselves from *announced* examinations and quizzes, except in cases of absence excused by the Dean's Office.

If a student is absent on the day an announced examination or quiz is held, and if he can present a valid excuse, he will be allowed, subject to the discretion of the Department, to take a make-up. If no make-up is given, the quiz shall be ignored when determining the student's final grade for the course. If a student is absent from an announced examination or quiz, and cannot present a valid excuse for his absence, he shall receive a grade of zero and shall not be allowed a make-up.

(d) **Class attendance:** Individual instructors may at their discretion keep attendance records for their students. An instructor may require any student who misses more than one-third of the class sessions of a given course to withdraw from the course with a W, provided that this requirement has been announced at the beginning of the semester. In such courses attendance records must be kept on file in the Department.

(e) **Withdrawal from courses:** Students are permitted to withdraw from courses not later than ten weeks after the start of the semester (six after the start of the summer session); W (withdrew) will be inscribed on their record. When a student is required by an instructor to withdraw from a course because of poor attendance, W will be inscribed on his record, regardless of the date of withdrawal.

5. Probation

The University reserves the right to drop a student for any reason and at any time. Normally a student will not be dropped for academic reasons without having been on probation for one semester or one summer session. Students on probation must take at least 12 credit hours each semester and 6 credit hours each summer session.

Placement on Probation. A student will be placed on probation for any one of the following reasons: a) if at the end of a semester or summer session he fails in one-third or more of the total number of credits he is carrying; b) if at the end of a semester, while carrying 12 or more credits, he does not earn a grade of 70 or higher in one-third or more of the total number of credits he is carrying. Students carrying a reduced schedule of less than 12 credits who have not failed in any of their courses are not subject to probation regulations until they have accumulated 12 or more credits. The counting of accumulated credits starts from the beginning of the reduced schedule. In all cases where 12 or more credits have been accumulated, probation regulations apply; c) if at any time beginning with the Sophomore year the student's cumulative average in his major field falls below 70. A Freshman or Sophomore student will not be placed on probation at the end of his first semester at the University unless he fails in one half or more of the credit hours carried.

Removal of Probation. If allowed to remain at the University, a student who is placed on academic probation continues on probation until it is removed by the Administrative Committee. The load of a student on probation shall not be less than 12 nor more than 17 credit hours during a regular semester. (This regulation is waived, however, for students registering for their final semester before graduation).

Probation will be removed at the end of a semester or summer session provided the student passes in all courses, attains a general average of 70 or more in one-third of the credits he is carrying, and attains a cumulative general average of 70 or more in the major field. For purposes of removing probation, a summer session is regarded as a semester, but only if the student carries a minimum of 8 credit hours.

Dismissal from the University. A student on probation who fails at the end of any semester or summer session in one-third or more of the total credits he is carrying will be dropped. A student who fails to remove probation by the end of the third semester after he is placed on probation will be dropped; no students, however, will be dropped at mid-year.

6. Failures and Application for Re-Admission

Failure. If a student fails a course, no re-examination is permitted. If a course is required for graduation, students failing that course must repeat it. No student may repeat a course more than once.

A student who at the end of his Senior year fails to attain a cumulative average of 70 or more in his major field will be required to take additional courses in that field in excess of the total hours required for graduation, provided he is permitted to continue at the University.

Re-Admission. When, in accordance with University regulations, a student is dropped, the implication is that he is not qualified to continue his education. Consideration for re-admission is given for one of the following reasons: (a) if the student was not able to do his work efficiently because of health reasons: in such cases, the University will depend on a medical report from the University Physician; (b) if the Advisor of the student or a Faculty member or Administrative Official of the University knows of certain family problems which may have influenced the academic achievement of the student; (c) if, after spending one or two years at another institution, the student is able to present a satisfactory record and recommendation. Ordinarily, supporting documents for (a) and (b) must be presented within 30 days after the student is dropped from the University, but in exceptional cases this may be done by the beginning of the following regular semester.

If a student is on probation and leaves the University after the tenth week of the semester, the Administrative Committee will decide whether he may be allowed to return to the University.

7. Student Advisors

Each student is assigned an academic Advisor who must approve the student's schedule each semester.

Freshman and Sophomore Students. Sophomore students who have already decided on their major should consult with their Departments for advice in determining their schedules. Other Sophomores and all Freshmen should consult the Arts and Sciences Student Academic Advisor.

Junior and Senior Students have as their Advisor a representative from the Department in which they intend to concentrate most of their work.

Interdepartmental Majors can choose their Advisor in either of the two Departments in which they are concentrating.

Teaching Majors will be advised by the Department in which the subject matter courses are taken.

SUMMER SESSION

Maximum Load. The maximum academic load during the summer session is 9 credits, but a student with an average grade of 80 or more in the previous semester is allowed to take 10.

Degree Courses. The degree courses offered during the summer session are identical in standard and content with those offered during the first and second semesters. The purpose of the summer degree courses are as follows:

- (a) To enable students to make up deficiencies which are due to either failures or changes of their major programs;
- (b) To permit able students to accelerate their program of study;
- (c) To permit students, who for financial reasons are required to work while studying, to spread their academic programs over a period of eleven months, instead of the usual nine;
- (d) To permit candidates for degrees who are unable to attend the University for four full academic years to complete part or all of their programs.

Non-Degree Courses and Summer Orientation Program. For these, see the special chapter at the end of this catalogue entitled Division of Extension and Special Programs.

Courses

COURSE NUMBERS AND THEIR MEANINGS

Numbers Preceding Course Titles

Non-credit Courses (1-99). No academic credit for graduation.

Freshman Courses (100-199). Ordinarily taken during the Freshman year, and may be counted toward graduation only as part of the Freshman program.

Introductory Courses (200-209). May be counted toward graduation whenever taken but cannot be considered as part of the credits in the major field.

Advanced Undergraduate Courses (210-299). May be counted as credits in the major field.

Graduate Courses (300-399). But note that many specialized courses numbered 210 through 299 also give graduate credit if approved by the student's supervisor and the Graduate Committee.

Odd Numbered Courses. Normally offered during the first semester.

Even Numbered Courses. Normally offered during the second semester.

Unit Courses. Courses designated with an "and" between numbers (e.g. 101 and 102) are ordinarily taken as a unit. Usually the first course must be completed before registration in the second.

Numbers Following Course Titles

The first number following the title of a course indicates the number of class hours given each week.

The second number indicates the laboratory or practice hours required each week.

The third number indicates the number of credit hours applied toward graduation. The credit assigned to each course is stated for the semester. Each hour of laboratory is considered 1/3 to 1/2 credit hour.

Time of Course Offering

Annually. Courses so marked are offered at least once during each academic year. Other courses marked *Alternate Years* and *Each Semester* are given accordingly. When frequency of offering is not indicated, the course is offered at the discretion of the Department.

Course Descriptions

Detailed course descriptions are available in the individual Departments for those requiring further information.

DEPARTMENT OF ARABIC AND NEAR EASTERN LANGUAGES

Chairman: Karam, A.

Professors: Abbas, I.; Ghul, M.; Hawi, K.; Khairallah, A.; Makarim, S.; Naimy, N.; Najm, N.; Tarazi, F.

Instructors: Bazzi, T.; Kassab, N.; Mutlak, A.

General Graduation Courses. All Arabic-speaking students are required to take 101 and 102 in the Freshman year, and 201 or 221 or 222 in either the Sophomore year or later.

B.A. Programs. Students majoring in the Department may work for one of two degrees: (a) B.A. in Arabic Language and Literature or (b) B.A. in Arabic Studies (open only to foreign students whose vernacular is not Arabic).

B.A. in Arabic Language and Literature. Students intending to work for the B.A. in Arabic Language and Literature must have attained a grade of 75 and above in their general graduation courses in Arabic (see above). Two concentrations are offered for this degree: (a) Arabic Literature, and (b) Arabic Language.

Students concentrating on Literature are required to take the following courses: 211 or 212, 221, 222, 241, 242, 245 or 246; and to select 6 of the following: 231, 232, 233, 234, 235, 236, 243, 244; and to select 3 of the following: 237, 238, 239, 240.

Students concentrating on Language are required to take the following courses: 205 and 206, or 207 and 208, 211 or 212, 213, 214, 221, 222, 227, 228, 229, 230, 241; and to select 3 of the following: 231, 232, 233, 234, 235, 236, 243, 244.

B.A. in Arabic Studies. Foreign students working for a B.A. in Arabic Studies are required to take the following courses: 211, 212, 215, 216, 221, 222, 225, 226, 245, 246, 247, 248, 249, 250.

Graduate Program. The Department offers a program leading to the degrees of M.A. and Ph.D.

43 Remedial Arabic. 3.0; 0cr; annually.

درس اعدادي في قواعد اللغة العربية . الستين الأولى أو الثانية .

101 and 102 Studies in Arabic Language and Literature. 3.0; 3 cr; annually.

١٠١ و ١٠٢ دراسات مجملة في اللغة والأدب . تشتمل على قراءة أبحاث في التراث العربي ونصوص من آثار اعلامه مما يعطي فكرة مجملة عن هذا التراث في سياقه الحضاري .

201 Advanced Studies in Arabic Language and Literature. 3.0; 3 cr; annually. ٢٠١ دراسات مفصلة في اللغة والادب . دراسة مفصلة لنصوص مختارة يعمد الى تحليلها لغوياً وأدبياً .

203 and 204 Introductory Arabic for Foreigners. 6.0; 6 cr; annually. A thorough course in basic literary Arabic, with emphasis on the vocabulary of modern literature, the press and current affairs. (For non-Arabic speaking students only).

205 and 206 Beginners Persian. 3.0; 3 cr; annually.

٢٠٥ و ٢٠٦ اللغة الفارسية (السنة الأولى) . دراسة تمهيدية في مبادئ اللغة الفارسية .

207 and 208 Beginners Turkish. 3.0; 3 cr; annually. (In English). A study of the essentials of Turkish grammar and language.

209 and 210 Modern Hebrew. 3.0; 3 cr; annually.

٢٠٩ و ٢١٠ العبرية الحديثة . يتناول قواعد اللغة العبرية الحديثة منذ القرن التاسع عشر حتى اليوم مع قراءة نصوص من الأدب والصحافة .

211 and 212 Background of Classical Arabic Literature. 3.0; 3 cr; annually. (In English and Arabic alternately). The formative elements of the literary, intellectual and social circumstances of Arabic literature to the end of the 13th century A.D.

٢١١ و ٢١٢ مدخل لدراسة الأدب العربي القديم . يتناول هذا الدرس الأصول الثقافية التي تعين الطالب على دراسة الأدب القديم دراسة عميقة شاملة .

213 and 214 First Year Semitics. 3.0; 3 cr; annually. (In English.) A general introduction to Semitic languages, with concentration on pre-Islamic Arabian epigraphy.

215 and 216 Intermediate Arabic for Foreigners. 6.0; 6 cr; annually. Course aims at developing ability to read and appreciate literary texts, to read and comment in Arabic on press reports and current affairs. Open to non-Arabic speaking students. Prerequisite: 203 and 204 or equivalent.

217 and 218 Second Year Persian. 3.0; 3 cr; annually.

٢١٧ و ٢١٨ اللغة الفارسية (السنة الثانية) . يتناول هذا الدرس قراءة نصوص اللغة الفارسية ، مع الامام بتاريخ الأدب الفارسي .

219 and 220 Second Year Turkish 3.0; 3 cr; annually. (In English). Reading of advanced texts. (Prerequisite: 207 and 208).

221 and 222 Advanced Arabic Grammar. 3.0; 3 cr; annually.

٢٢١ و ٢٢٢ أصول النحو . يتناول المبادئ الأساسية لقواعد اللغة العربية على مستوى عال .

223 and 224 Second Year Semitics. 3.0; 3 cr; annually. (In English). North Western Semitic languages, especially Aramaic.

225 and 226 Advanced Arabic for Foreigners. 3.0; 3 cr; annually. Course aims at enabling students to read Arabic sources and documents, and to write reports and term papers in Arabic. Open to non-Arabic speaking students. Prerequisite: 215 and 216 or equivalent.

227 and 228 Arabic Linguistics. 3.0; 3 cr; alternate years.

٢٢٧ و ٢٢٨ علوم اللغة العربية . يتناول دراسة علم الأصوات واللهجات والدلالة ، بالقياس الى اللغة العربية ، وعلم العروض والبلاغة .

229 and 230 Arabic Philology. 3.0; 3 cr; alternate years.

٢٢٩ و ٢٣٠ فقه اللغة العربية . يتناول نظرية اللغات العامة والأصول السامية والأصول اللغوية المدونة في الجزيرة العربية (النقوش) وتاريخ العربية في الجاهلية و صدر الاسلام وجمع المادة اللغوية ومشكلات اللغة العربية الحديثة .

231 Pre-Islamic Arabic Poetry. 3.0; 3 cr; alternate years.

٢٣١ الشعر الجاهلي . يشتمل على دراسة لمصادر الشعر الجاهلي والمشكلات المتعلقة به وقيمة هذا الشعر من الوجهتين التاريخية والفنية ، مع قراءة نماذج متنوعة من هذا الشعر وتحليلها .

232 Umayyad Poetry. 3.0; 3 cr; alternate years.

٢٣٢ الشعر الأموي . يشتمل على دراسة تمهيدية للنواحي الاجتماعية والسياسية المؤثرة في توجيه الشعر الأموي ، على اختلاف مذاهبه ، وتحليل نصوص مختارة .

233 and 234 Abbasid Poetry. 3.0; 3 cr; alternate years.

٢٣٣ و ٢٣٤ الشعر العباسي . يبحث في العوامل الحضارية التي كونت طبيعته ، ونتاج الأعلام في شعرائه .

235 Andalusian Literature. 3.0; 3 cr; alternate years.

٢٣٥ الادب الأندلسي . يتناول دراسة الأدب العربي في الأندلس ، شعره ونثره ، منذ الفتح حتى نهاية عصر المرابطين ، مع قراءة عدد من المختارات الأدبية .

236 Koranic Studies. 3.0; 3 cr; alternate years.

٢٣٦ دراسات قرآنية . يتناول هذا الدرس تاريخ جمع القرآن : نشأة العلوم القرآنية وما يتعلق بالأسلوب القرآني وفكرة الاجاز ، ومذاهب المفسرين مع قراءة عدد من السور قراءة تطبيقية .

237 and 238 Modern Arabic Poetry. 3.0; 3 cr; alternate years.

٢٣٧ و ٢٣٨ الشعر العربي الحديث . يتناول العوامل الفاعلة في تطور الشعر في القرن العشرين ، بالاستناد الى مختارات من نتاج اعلامه .

239 Modern Arabic Prose (The Novel). 3.0; 3 cr; alternate years.

٢٣٩ النثر العربي الحديث (القصة) . يتناول تاريخ القصة العربية الحديثة منذ نشأتها حتى اليوم ، ويركز على اعلام كتابها .

240 Modern Arabic Prose (The Drama). 3.0; 3 cr; alternate years.

٢٤٠ النثر العربي الحديث (المسرحية) . يتناول تطور الأدب المسرحي في اللغة العربية ، مقترناً بالنشاط المسرحي ، مركزاً على اعلام الكتاب .

241 and 242 Literary Criticism. 3.0; 3 cr; annually.

٢٤١ و ٢٤٢ مناهج النقد الأدبي . يتناول تطور نظرية الأدب والنقد من ارسطو الى ابن الاثير ، ونفاعلها مع النظريات الغربية الحديثة .

243 and 244 Classical Arabic Prose. 3.0; 3 cr; alternate years.

٢٤٣ و ٢٤٤ النثر العربي القديم . وهو دراسة شاملة لتطور اساليب النثر في الأدب العربي منذ الجاهلية حتى نهاية العصر العباسي ، مواتركيز على مشاهير اعلام الكتاب .

245 and 246 Background of Modern Arabic Literature. 3.0; 3 cr; annually. (In English and Arabic alternately). The development of Arab thought from the beginning of the 19th century up to the first quarter of the 20th.

٢٤٥ و ٢٤٦ مدخل لدراسة الأدب العربي الحديث . يتناول هذا الدرس الفكر العربي منذ مطلع القرن التاسع عشر حتى الربع الأول من القرن العشرين .

247 and 248 Senior Seminar in Arabic Language. 3.0; 3 cr; annually.

٢٤٧ و ٢٤٨ درس خاص في اللغة العربية . الغاية من هذا الدرس تدريب الطلاب المتميزين على أصول البحث وكتابة الدراسات في اللغة العربية وتاريخها .

249 and 250 Senior Seminar in Arabic Literature. 3.0; 3 cr; annually.

٢٤٩ و ٢٥٠ درس خاص في الأدب العربي . الغاية من هذا الدرس تدريب الطلاب على أصول البحث العلمي في الأدب العربي وتاريخه ، مع التركيز على عصر أو أدب .

- 301 and 302 Graduate Seminar in Classical Arabic Literature.** 3.0; 3 cr; annually.
٣٠١ و ٣٠٢ درس خاص لطلاب الدراسات العليا في الأدب العربي القديم .
- 303 and 304 Graduate Seminar in Modern Arabic Literature.** 3.0; 3 cr; annually.
٣٠٣ و ٣٠٤ درس خاص لطلاب الدراسات العليا في الأدب العربي الحديث .
- 305 and 306 Graduate Seminar in Arabic Linguistics.** 3.0; 3 cr; annually.
٣٠٥ و ٣٠٦ درس خاص لطلاب الدراسات العليا في علوم اللغة العربية .
- 399 M.A. Thesis.** ٣٩٩ أطروحة الماجستير .
- 401 and 402 Graduate Tutorial in Classical Arabic Literature.** 3.0; 3 cr; annually.
٤٠١ و ٤٠٢ درس خاص لطلاب الدراسات العليا في الأدب العربي القديم .
- 403 and 404 Graduate Tutorial in Modern Arabic Literature.** 3.0; 3 cr; annually.
٤٠٣ و ٤٠٤ درس خاص لطلاب الدراسات العليا في الأدب العربي الحديث .
- 405 and 406 Graduate Tutorial in Arabic Language.** 3.0; 3 cr.
٤٠٥ و ٤٠٦ درس خاص لطلاب الدراسات العليا في اللغة العربية .
- 499 Ph.D. Thesis.** ٤٩٩ أطروحة الدكتوراه .

DEPARTMENT OF BIOLOGY

Chairman : Basson, P.W.

Professors : Avolizi, R.; Babikian, L.; Billeh, V.; Butros, J.; Deeb, S.; Hayes, W.,
Hulings, N.; Makemson, J.; Mirhij, J.

The Department of Biology offers courses in the biological sciences through programs leading to the B.S. and M.S. degrees. Students wishing to major in Biology should first secure the approval of the Department by written application and obtain an average of 70 or better in Biology 201 and 202.

The requirements for the **Biology Major** are as follows: Biology 203, 215, 216, 222, 232, 243, 245, 264 and three elective courses in Biology. The Biology Major is also required to take Chemistry 208 and 209 (Organic Chemistry), one semester of Biochemistry and Physics 204 and 205. For other students Biology 201 and 202 are prerequisites for all advanced courses.

Interdepartmental Majors are offered in conjunction with the Departments of Chemistry, Geology and Education. For requirements for the **Biology-Chemistry Interdepartmental Major** see below under Department of Chemistry. Requirements for the **Biology-Geology Interdepartmental Major in Marine Sciences** are listed under Department of Geology.

The requirements for the **Biology Teaching Major** are as follows: Biology 201, 202, 203, 215, 216, 243, 245, 264, plus a minimum of 13 credits in Biology electives. The Biochemistry, Chemistry, Mathematics and Physics requirements are the same as for Biology majors. Education courses leading to the Teaching Diploma are also required.

103 and 104 General Biology. 3.3; 4 cr; annually. Basic biological principles emphasizing the human implications. Open to Arts students only.

201 and 202 General Biology. 3.3; 4 cr; annually. Study of basic mechanisms underlying the structure and functioning of living organisms. Open to Science students, and a prerequisite for all 200-300 courses.

203 *Cell Biology I*. 2.3; 3 cr; annually. Study of the morphology, physico-chemical organization, and functions of cells and their organelles.

210 *Human Biology*. 3.0; 3 cr; annually. Introduction to Man. Human anatomy, physiology and genetics and variation will be discussed, as well as evolution of the Hominoids and evolution of behavior and primate ethology as they are related to ecology and stress effects. Not open to Biology majors, or Interdepartmental Biology majors.

211 *Comparative Vertebrate Anatomy*. 2.4; 4 cr; annually.

215 *Plant Physiology*. 2.4; 4 cr; annually.

216 *Animal Physiology*. 3.3; 4 cr; annually.

222 *Cell Biology II*. 3.3; 4 cr; annually. Continuation of Biology 203 with emphasis on the molecular composition and metabolic activities of cell components, cellular composition and metabolic activities of cell components, cellular energetics, flow of information in the cell, cellular control mechanisms, and aspects of muscle and nerve physiology. Prerequisites: Agriculture FTN 261 and 263, or consent of instructor.

232 *Development*. 3.3; 4 cr; annually. A study of the development of the vertebrates.

243 *Genetics*. 3.0; 3 cr; annually.

245 *Genetics Laboratory*. 0.4; 2 cr; annually. May be taken concurrently with 243 or after 243.

254 *Evolution*. 3.0; 3 cr; annually. Principles of evolution in plants and animals, including origin of life, natural selection, and population genetics. Prerequisite: 243.

256 *Systematic Botany*. 2.4; 4 cr; annually. Classification of flowering plants with emphasis on phylogeny of local flora and economic importance.

264 *Ecology*. 2.4; 4 cr; annually. Prerequisite: 201 and 202, or consent of instructor.

266 *Biological Oceanography*. 2.4; 4 cr; annually. Prerequisite: Consent of instructor.

271 *Invertebrate Zoology*. 2.4; 4 cr; annually. Introduction to the invertebrate phyla, exclusive of insects. Prerequisite: 202 or consent of instructor.

272 *Entomology*. 2.4; 4 cr; annually.

274 *Microbiology*. 2.6; 4 cr; annually. Prerequisite: Chemistry 208 and consent of instructor.

284 *Microtechnique*. 1.6; 4 cr; alternate years. Principles and techniques for the preparation of microscopic slides of animal and plant material.

290 *Special Topics in Biology*. 3.0; 3 cr; annually. Designed to explore, through lectures, seminars, and experimentation, recent advances in the major fields of plant and animal biology. Topics will be selected each year according to major trends and the needs of students. Prerequisite: consent of instructor.

291 and **292** *Undergraduate Tutorial*. 3 cr; annually. Limited to undergraduate students. Designed for directed study students and open to other undergraduate students with permission of Biology Faculty.

M. S. Program

The Department of Biology offers, in addition to the Master's degree in Biology, a Master's degree in Marine Sciences in collaboration with the Department of Geology. Candidates pursuing the Master's degree in Marine Sciences are required to take Biology 266, 364, 365 and Geology 223 in addition to other biology courses, with the consent of the Advisor, which fulfill the University requirements for a Master's degree.

326 Endocrinology. 2.4; 4 cr; alternate years. Morphology and physiology of endocrine glands, with emphasis on vertebrates. Open also to Senior students. Prerequisite : 211 or 232 and consent of instructor.

328 Comparative Physiology. 2.4; 4 cr; alternate years. Functional study of organ systems of animal groups emphasizing their adaptation to the environment. Prerequisite : 221 and consent of instructor.

341 Molecular Biology of Development. 2.3; 3 cr; annually. Mechanisms underlying development such as fertilization, morphogenetic movements, induction and differentiation, emphasizing molecular interpretations.

342 Cell and Molecular Biology. 3.3; 4 cr; annually. Recent developments in structure-function relationships in various cellular components at the molecular level.

343 Advanced Genetics. 2.3; 3 cr; annually. Selected topics in microbial and human genetics, cytogenetics and immunogenetics. Prerequisite : 243, 245 and consent of instructor.

361 Concepts of Modern Ecology. 3.0; 3 cr; annually. Recent theories in ecology which examine ecosystems as evolving systems. Emphasis on the use of recent publications in the field. Prerequisite : 264.

362 Ecology of Terrestrial Communities. 2.7; 5 cr; annually. Field, laboratory, and library examination of the varied terrestrial communities of Lebanon and nearby countries. Prerequisite : 264, and Physical Properties of Soils (Agriculture SI 213). (May be taken concurrently).

364 Chemical Oceanography. 2.3; 3 cr; annually.

365 Physical Oceanography. 2.3; 3 cr; annually.

370 Methods in Biological Analysis. 1.4; 3 cr; annually. Theory and practice of commonly used analytical methods in biology.

374 Mycology. 2.4; 4 cr; annually. Survey and study of fungi with practical isolation and determination of genera and species of fungi in soils. Prerequisite : consent of instructor.

390 Special Topics. 3.0; 3 cr; Topics will be selected each year from among the various biological disciplines which might be the specialty of Faculty present, or requested by the students. Prerequisite : consent of instructor.

391 and 392 Tutorial. 3.0 or 0.6; 3 cr; annually. Individual investigation by graduates and qualified seniors. Fields of research in which problems can be selected are : Embryology, Endocrinology, Genetics, Invertebrate Zoology, Marine Biology and Oceanography, Microbiology, Mycology, Phycology, Plant Morphology, Vertebrate Morphology and Metabolism. Prerequisite : consent of instructor and average of 80 in Biology.

393 and 394 Seminar. 1.0; 1cr; annually. For graduate and qualified seniors.

Reports on current topics and literature. Prerequisite : Consent of instructor.

399 M.S. Thesis. Investigation of a problem employing current experimental procedures. Culminating in research report. For fields of selection see 391 and 392.

The following courses in other Schools may be applied toward a concentration in biology. For descriptions see the listings of the School concerned.

School of Medicine

Human Morphology 209 : *Basic Histology* (Medicine I).

Bacteriology 227 : *Bacteriology and Virology* (Medicine II).

Biochemistry 221 : *Basic Biochemistry* (Medicine I).

School of Public Health

Public Health TH 225 : *Medical Parasitology and Mycology* (Medicine II).

DEPARTMENT OF BUSINESS ADMINISTRATION

Chairman: Eid, N.

Professors: Aly, H. ; Ashour, L. ; Ghattas, E. ; Hayden, J. (Visiting) ; Midani, A. ; Mikdashi, Z. ; Parsons, B. ; Richard, S. ; Shaath, N. ; Shibl, Y. ; Taky, Z.

Lecturers: Chamieh, S. ; Dajani, B. ; Marmura, A.

Instructor: Siniora, F.

The Department of Business Administration offers two programs: one leading to a Bachelor's degree in Business Administration and the other to a Master's degree in Business Administration. The aim of the Department is to provide a well rounded professional education in business. In a more detailed sense, its purpose is to achieve the following objectives :

1. A broad and cultural education through courses in the liberal arts, plus an ability to express oneself clearly and effectively;
2. A good business background by way of exposure to various aspects of business;
3. A technical background by allowing the student to choose a specialized area of business in which to concentrate;
4. An ability to work with people, to accept responsibility, and to identify business problems and tackle them scientifically.

Students desiring to major in Business Administration must first secure the approval of the Department. Beginning with the Sophomore year, a minimum of 44 credits in Business Administration, 19 credits in Economics, 12 credits in Cultural Studies, 6 credits in Arabic and English, 4 credits in Mathematics, and 6 credits in elective courses are required for the degree of B.B.A. No student is allowed to register in business courses numbered 212 and above unless he has completed the following courses and attained an average of 70: Business Administration 210 and 211; Economics 211; Mathematics 203; and English 201.

The requirements for the B.B.A. degree are as follows: Business Administration 210, 211, 212, 220, 223, 224, 231, 241, 251, 254, 255; and three courses from among 213, 215, 227, 228, 236, 238, 239, 245, 246, 257, 261, 263.

- 201** *Introduction to Business Administration*. 3.0; 3 cr; annually.
- 210** *Fundamentals of Accounting I*. 4.0; 4 cr; annually.
- 211** *Fundamentals of Accounting II*. 4.0; 4 cr; annually. Prerequisite: 70 in 210.
- 212** *Cost Accounting and Control*. 3.0; 3 cr; annually. Prerequisite: 211.
- 213** *Auditing*. 3.0; 3 cr; annually. Prerequisite: 70 in 211.
- 215** *Advanced Accounting*. 3.0; 3 cr; annually. Prerequisite: 70 in 211.
- 220** *Business Law*. 3.0; 3 cr; annually. Prerequisite: Junior standing.
- 223** *Money and Capital Markets*. 3.0; 3 cr; annually. Prerequisites: 211 and Economics 212.
- 224** *Financial Management*. 3.0; 3 cr; annually. Prerequisite: 223.
- 227** *Commercial Banking*. 3.0; 3 cr; annually. Prerequisite: 223.
- 228** *Insurance*. 3.0; 3 cr; annually. Prerequisite: Junior standing.
- 231** *Business Administration*. 3.0; 3 cr; annually. Prerequisite: Junior standing.
- 236** *Production Management*. 3.0; 3 cr; annually. Prerequisite: 231.
- 238** *Human Relations*. 3.0; 3 cr; annually. Prerequisite: 231.
- 239** *Personnel Administration*. 3.0; 3 cr; annually. Prerequisite: 231.
- 241** *Marketing Management*. 3.0; 3 cr; annually. Prerequisite: Economics 212.
- 245** *International Marketing*. 3.0; 3 cr; annually. Prerequisite: 241.
- 246** *Marketing Research*. 3.0; 3 cr; annually. Prerequisites: 241 and Economics 213.
- 251** *Managerial Economics*. 3.0; 3 cr; annually. Prerequisites: Economics 212 and 213.
- 254** *Quantitative Methods I*. 3.0; 3 cr; annually. Prerequisites: Mathematics 203 and Economics 213.
- 255** *Quantitative Methods II*. 3.0; 3 cr; annually. Prerequisite: 254.
- 257** *Computers in Management Systems*. 3.0; 3 cr; annually. Prerequisite: Senior standing.
- 261** *Seminar in Industrial Development*. 3.0; 3 cr; annually. Prerequisite: Senior standing.
- 263** *Senior Tutorial Course*. 3.0; 3 cr; annually.

M.B.A. Program

This program is designed for students who are preparing for careers as professional managers and who desire a highly integrated program of studies wherein the primary perspective is that of general management.

Courses included within the M.B.A. program are designed to provide an understanding of a broad array of concepts and theories fundamental to business administration and to demonstrate the relevancy and application of these concepts and theories to business practice. Major elements of the program include an analysis of business functions, the management process, and the socio-political-legal-economic environment within which the business firm operates and business decisions are made. Special attention is also given to problem identification, policy formulation, the process of decision making, economic analysis, and to behavioral and quantitative aspects of business.

- 301** and **302** *Graduate Tutorial Course.* 3-6 cr.
303 *Business Economics.* 3.0; 3 cr.
304 *Business Research.* 3.0; 3 cr.
305 *Business Management.* 3.0; 3 cr.
306 *Organization Theory.* 3.0; 3 cr.
307 *Accounting Theory.* 3.0; 3 cr.
308 *Controllership.* 3.0; 3 cr.
309 *Marketing Seminar.* 3.0; 3 cr.
314 *Marketing Management.* 3.0; 3 cr.
315 *Production Planning and Control.* 3.0; 3 cr.
316 *Production and Inventory Management.* 3.0; 3 cr.
317 *Financial Policy.* 3.0; 3 cr.
318 *Graduate Seminar in Business Administration.* 3.0; 3 cr.
320 *Investment Analysis.* 3.0; 3 cr.
321 *International Business Finance.* 3.0; 3 cr.
322 *Central Banking and Monetary Policy.* 3.0; 3 cr.
325 *Business Policy.* 3.0; 3 cr.
399 *M.B.A. Thesis.*

DEPARTMENT OF CHEMISTRY

Chairman : Slade, L.T.

Professors : Abdul-Karim, A.; Awad, E.; Cook, R.; Edwards, L.; Haddadin, M.; Hanania, G.; Issidorides, C.; Olmsted, J.; Sarkis, A.; Tayim, H.; Thabet, S.
Instructors : Jarrar, A.; Vassilian, A.

Students who wish to major in Chemistry must secure the approval of the Department. To be accepted as a Chemistry major a student must secure a grade average of 70 or better in Chemistry 201 and 202. For graduation, a student must maintain an average of 70 or better in his major courses and must complete the following minimum requirements: Chemistry 211, 212, 213, 218, 219, 220, 221, 225, 228, 229 and 293; Mathematics 201 and 202; Physics 211 and 213; two advanced chemistry electives.

Interdepartmental Majors including Chemistry as one subject in the major are listed below:

Biology-Chemistry Interdepartmental Major. The following courses are required of a student who desires to take a Biology-Chemistry Interdepartmental Major: Biology 201, 202, 232 and 243, plus nine additional credits in biology; Chemistry 201, 202, 209, 211, 212 and 219, plus three additional credits in chemistry; Mathematics 201; Physics 204 and 205.

Chemistry-Physics Interdepartmental Major. The following courses are required of a student who desires to take a Chemistry-Physics Interdepartmental Major: Chemistry 101, 201, 202, 209, 211, 212, 218 and 219; Mathematics 101,

102, 201, 202 and 221 ; Physics 101, 102, 211, 212, 213, 214, 215, 217 and 219, plus 6 additional credits in Physics courses numbered 210 and above.

Chemistry Teaching Major. The following courses are required of a student who desires to take a Chemistry Teaching Major: Chemistry 201, 202, 211, 212, 213, 217, 219, 220, 228, 229 and 293, plus four additional credits of advanced chemistry (thirty credits total, beyond 210 level) ; Education 211, 212, 215, 216, 255 and 256 ; Mathematics 201, 202 and 207 or Education 227 ; Physics 211 and 213.

101 *General Chemistry*. 3.3 ; 4 cr ; each semester.

102 *General Chemistry*. 3.3 ; 4 cr ; annually. Prerequisite: 101.

201 *Chemical Principles I*. 3.4 ; 5 cr ; each semester.

202 *Chemical Principles II*. 3.4 ; 5 cr ; each semester. Prerequisite: 201.

208 *Brief Survey of Organic Chemistry*. 3.0 ; 3 cr ; annually. Prerequisite: 101 or equivalent. Chemistry 209 should be taken concurrently. Students cannot receive credit for both 208 and 211.

209 *Organic Chemistry Laboratory for Non-Majors*. 1.4 ; 2 cr ; annually. Corequisite: 208 or 212, which should be taken concurrently.

211 *Organic Chemistry I*. 3.0 ; 3 cr ; each semester. Pre- or corequisite: 201. Students cannot receive credit for both 208 and 211.

212 *Organic Chemistry II*. 3.0 ; 3 cr ; annually. Continuation of 211, which is prerequisite. Students should take 209 or 213 concurrently.

213 *Organic Chemistry Laboratory*. 1.8 ; 4 cr ; annually. Corequisite: 212, which should be taken concurrently.

217 *Chemical Dynamics*. 3.0 ; 3 cr ; each semester. Prerequisites: 201, Mathematics 202, or consent of instructor.

218 *Molecular Structure*. 3.0 ; 3 cr ; each semester. Prerequisites: 201, Mathematics 202, or consent of instructor.

219 *Chemical Thermodynamics*. 3.0 ; 3 cr ; each semester. Prerequisite: 201. Corequisite: Mathematics 202, or consent of instructor.

220 *Physical Chemistry Laboratory*. 0.6 ; 3 cr ; each semester. Prerequisites: 217, 219, or consent of instructor.

221 *Chemical Instrumentation*. 2.3 ; 3 cr ; each semester. Prerequisite: 220.

223 *Inorganic Industrial Chemistry*. 3.0 ; 3 cr ; annually. Corequisite: 219, or consent of instructor.

224 *Organic Industrial Chemistry*. 3.0 ; 3 cr ; annually. Prerequisites: 212 and 219 or consent of instructor.

225 *Organic Qualitative Analysis*. 1.6 ; 4 cr ; annually. Prerequisite: 213.

227 *Technical Analysis*. 0.8 ; 3 cr ; annually. Prerequisites: 209 or 213, and consent of instructor.

228 *Inorganic Chemistry*. 3.0 ; 3 cr ; annually. Prerequisite: 202.

229 *Coordination Compounds*. 3.0 ; 3 cr ; annually. Prerequisite: 228.

243 *Organic Syntheses*. 0.8 ; 3 cr. Prerequisite: 213.

244 *Inorganic Preparations*. 0.8 ; 3 cr. Prerequisite: 228.

293 *Use of the Chemical Literature.* 1.0; 1 cr; annually. Prerequisite: Senior standing.

299 *Independent Study.* 3-6 cr. Prerequisite: Senior standing.

M.S. and Ph. D. Programs

The department offers both M.S. and Ph.D. degrees in Chemistry. Graduate students may specialize in Inorganic, Organic or Physical Chemistry. Of the minimum of 24 course credits required for the M.S. degree, a minimum of 6 credits must be graduate courses in the special field of chemistry which the student intends to choose. At least 6 additional credits must be graduate courses in chemistry outside the student's field of specialization. Course work for a Ph. D. candidate is planned by his research advisor according to the student's interest and the recommendation of his supervisory committee.

301 *Structure of Inorganic Compounds.* 3.0; 3 cr; annually.

302 *Chemistry of the Less Common Elements.* 3.0; 3 cr; alternate years.

303 *Chemistry of the Coordination Compounds.* 3.0; 3 cr; annually.

304 *Chelates.* 3.0; 3 cr; alternate years.

311 *Advanced Organic Chemistry.* 3.0; 3 cr; annually.

312 *Organic Stereochemistry.* 3.0; 3 cr; alternate years.

313 *Physical Organic Chemistry.* 3.0; 3 cr; alternate years.

314 *Heterocyclic Chemistry.* 3.0; 3 cr; alternate years.

315 *Polymer Chemistry.* 3.0; 3 cr; alternate years.

321 *Quantum Chemistry.* 3.0; 4 cr; annually.

322 *Statistical Thermodynamics.* 3.0; 3 cr; alternate years.

323 *Chemical Kinetics.* 3.0; 3 cr; alternate years.

324 *Electrolytes.* 3.0; 3 cr; alternate years.

351 and **352** *Special Topics.* 3 cr. May be repeated for credit with consent of Department.

361 and **362** *Tutorials.* 3 cr. May be repeated for credit with consent of Department.

399 *M.S. Thesis.*

499 *Ph. D. Thesis.*

CULTURAL STUDIES PROGRAM

Chairman : Harcourt, H.R.

Professors : Dodd, E.; Livingston, J.; Murphy, M.; Ryffel, H.; Seeden, H.; Seikaly, S.; Vulgamore, M. (Visiting).

Lecturers : Buheiry, M.; Oshagan, V.; Shebaya, P.; Walker, R.; Zurayk, I.

Instructors : Gammon, A.; Khairallah, L.; al-Radi, S.; Tu'meh, E.

The Cultural Studies Program is a sequence of four one-semester courses (201, 202, 203 and 204) which all Arts and Sciences students are required to take during their Sophomore and Junior years.

The Cultural Studies Program provides students with the opportunity to under-

stand the most fundamental elements in the cultural heritages of the Middle East and the West, especially those elements which have survived to influence the forms and dynamics of contemporary culture. The courses focus mainly on primary source texts which present cultural motifs in their clearest and most meaningful symbolic form. By focusing on primary texts rather than approaching cultural phenomena within the narrower limits of one or more departmental disciplines, the Program seeks to provide a common academic "core" for students alongside their specialized study in their field of major concentration.

In each of the courses, students attend a general lecture and two discussion groups each week. The discussion groups utilize various seminar methods to help students grasp the meaning of the assigned texts and to develop a critical facility for independent judgment.

201 and **202** *Ancient, Medieval and Renaissance Culture*. 3.0; 3 cr; annually. 201 is a prerequisite for 202.

203 and **204** *Modern and Contemporary Culture*. 3.0; 3 cr; annually. 201 and 202 are prerequisites for 203. 201, 202 and 203 are prerequisites for 204.

202, **203** and **204** *Honors*. 3.0; 3 cr; annually. Occasional special sections of the basic courses for students of exceptional ability. The prerequisites for each Honors course are the same as for the corresponding regular course.

295 *Senior Seminar*. 3.0; 3 cr; annually. An advanced course for students who have demonstrated superior academic ability. The seminar will deal with special topics selected by the instructor and students. Prerequisites: 201, 202, 203 and 204 and consent of the instructor.

GRADUATE PROGRAM IN DEVELOPMENT ADMINISTRATION

Chairman : Diab, M.

Professors : Aly, H. ; Roy, D. (Visiting) ; Sha'ath, N.

The Graduate Program in Development Administration is designed for present and prospective officials in government or private institutions to provide them with the education and training that would enable them to understand the process of development and equip them with the administrative skills to properly formulate and implement development plans and programs.

The Program offers a Master of Arts degree in Development Administration. It is open to holders of a university degree who qualify for graduate status. The participants, however, are mostly graduates with some years of experience in government service.

Graduate requirements include 33 credit hours of course work taken over a period of eleven months plus 6 credit hours for a research project or a thesis taken over a period of four months.

310 *Tutorial in Development Administration*. 3 cr.

311 *Introduction to Development Administration*. 3 cr.

312 *Nature, Concepts and Aspects of Development in the Middle East*. 3 cr.

313 *Economics for Development Policy*. 3 cr.

314 *Quantitative Techniques for Planning and Decision-Making*. 3 cr.

315 *Development Planning*. 3 cr.

316 *The Implementation of National Plans*. 3 cr.

317 *Administration of Public Enterprises.* 3 cr.

318 *Seminar in Development Studies.* 3 cr.

319 *Workshop on Problems in Development Administration I.* 3 cr.

320 *Workshop on Problems in Development Administration II.* 3 cr.

399 *M.A. Research Project or Thesis.* 6 cr.

Interested applicants are asked to contact the Graduate Program in Development Administration for detailed description of courses.

DEPARTMENT OF ECONOMICS

Chairman : Badre, A. (Visiting).

Professors : Diab, M.; DeWulf, L.; Fuleihan, J.; Ghandour, M.; Hassanein, M.; Karaoglan, R.; Khalaf, N.; Sayigh, Y.; Sirhan, G.

Lecturers : Hajjar, N.; Medawar, G.

Students desiring to major in the Department of Economics must obtain the approval of the Department and must have completed 211 and 212 with a grade of 70 or more in both. They must have also completed Mathematics 101 and 102 (or equivalent) or Mathematics 203. The program for a major includes 211, 212, 213, 214, 217, 227, 228, 230 and 235. In exceptional cases, the chairman is authorized to accept courses in other Departments to fulfill the requirements of an Economics major.

203 *Survey of Economics.* 3.0; 3 cr; annually. Basic principles and general problems of economics. No credit is given for students majoring in Economics. Students cannot receive credit for both 203 and 211-212.

211 and **212** *Elementary Economic Theory.* 3.0; 3 cr; annually. Students cannot receive credit for both 203 and 211-212.

212 *Economic Statistics I.* 4.0; 4 cr; annually. Prerequisite: Mathematics 203. Not open to students who have completed Mathematics 233. Students cannot receive credit for more than one of Economics 213, Education 227, or Mathematics 207.

214 *Economic Statistics II.* 2.0; 2 cr; annually. Theoretical distribution; analysis of variance; multiple regression analysis; elements of Bayesian statistics. Prerequisite: 213 or its equivalent.

217 *Intermediate Price Theory I.* 3.0; 3 cr; annually. Price and output determination under various market structures. Prerequisites: 70 or more in 211 and 212.

218 *Intermediate Price Theory II.* 3.0; 3 cr; annually. Theory of distribution: general equilibrium and input-output analysis; linear programming; welfare economics. Prerequisite: 70 or more in 217.

221 *History of Economic Doctrines.* 3.0; 3 cr; annually. The development of economic ideas to the end of the 19th century. Prerequisites: 70 or more in 211 and 212.

222 *Twentieth Century Economic Thought.* 3.0; 3 cr; annually. Prerequisites: 70 or more in 211 and 212.

223 and **224** *Economic Organization of the Arab Middle East.* 3.0; 3 cr; annually. Application of economic theory to the problems of the contemporary Middle East.

Prerequisites: 70 or more in 211 and 212, or consent of instructor.

226 *Public Finance*. 3.0; 3 cr; annually. Prerequisites: 70 or more in 211 and 212 for Economics majors, or 70 or more in 203 for non-Economics majors.

227 *Money and Banking*. 3.0; 3 cr; annually. Prerequisites: 70 or more in 211 and 212.

228 *Intermediate Macroeconomics*. 3.0; 3 cr; annually. A study of the aggregate approach to economics. Prerequisite: 227, or consent of instructor.

229 *Income Analysis and Economic Policy*. 3.0; 3 cr; annually. Concepts of national income and methods of measuring it. Prerequisites: 70 or more in 211 and 212, or consent of instructor.

230 *Economic History*. 3.0; 3 cr; annually. Economic development of Europe up to 1914.

232 *Contemporary Economic Systems*. 3.0; 3 cr; annually. Analysis of socialism, the main features of capitalism, fascism, and communism. Prerequisites: 70 or more in 211 and 212, or consent of instructor.

235 *International Trade Theory*. 3.0; 3 cr; annually. Prerequisites: 70 or more in 211 and 212.

236 *International Economic Policy*. 3.0; 3 cr; annually. Prerequisite: 70 or more in 235, or consent of instructor.

237 *Theory of Economic Development*. 3.0; 3 cr; annually. Classical to modern theories of economic development; policy issues in accelerating development in poor countries. Prerequisites: 70 or more in 211 and 212, or consent of instructor.

239 *Introduction to Mathematical Economics*. 3.0; 3 cr; annually. Mathematical treatment of basic elements in microeconomic and macroeconomic theory. Prerequisites: 217, 228, and Mathematics 203 or equivalent.

295 *Senior Seminar in Economics*. 3.0; 3 cr.

301 and 302 *Graduate Tutorial*. 3.0; 3 cr.

303 and 304 *Graduate Seminar*. 3.0; 3 cr.

305 *Statistics for Economists*. 3.0; 3 cr; annually. Prerequisites: 213 and 214, or consent of instructor.

306 *Econometrics*. 3.0; 3 cr; annually. Prerequisite: 305, or consent of instructor.

317 *Economics of the Firm*. 3 cr; annually.

318 *Economics of Distribution*. 3 cr; annually.

320 *Agricultural Economics*. 3 cr; annually.

328 *Theory of Employment and Economic Policy*. 3 cr; annually.

329 *National Income Analysis*. 3 cr; annually.

330 *Business Cycles*. 3 cr; annually.

335 *International Trade Theory*. 3 cr; annually.

336 *International Economic Policy*. 3 cr; annually.

337 *The Framework of Economic Development*. 3 cr; annually.

338 *The Framework of Economic Development — Case Study*. 3 cr; annually.

339 *Topics in Mathematical Economics*. 3 cr; annually.

399 *M.A. Thesis*.

DEPARTMENT OF EDUCATION

Chairman: Bashshur, M.

Professors: Cajoleas, L.; Dobbyn, M.; Haddad, F.; Haddad, W.; Moracco, J.; Namek, Y.; Saadeh, I.; Sara, N.; Soghikian, J.; Yorkey, R.

Lecturers: Abdo, D.; Antippa, F.; Zarour, G.

Instructors: Ghusayni, R.; Haddad, M.

The Department of Education offers programs at both the undergraduate and graduate levels. At the undergraduate level its programs lead to the Bachelor of Arts degree and/or the Teaching Diploma. At the graduate level its programs lead to the Master of Arts degree.

The Science and Mathematics Education Center is a part of the Department of Education. See special section entitled Institutes, Centers and Special Programs, following descriptions of Arts and Sciences Departments and their offerings.

I. Undergraduate programs

1. Major in Education. This leads to the Bachelor's degree including the Teaching Diploma. Requirements are a minimum of 30 credit hours in Education (including the 18 credit hours of the Teaching Diploma) plus one of the following options:

- (a) 30 credit hours in another academic field of concentration.
- (b) 24 credit hours in one academic field of concentration, and 12 credit hours in another field.
- (c) 18 credit hours in each of two academic fields of concentration.

In each case the approval of the Department of Education is necessary. An average of 70 or above is required in each field. Students intending to major in Education are advised to take Psychology 201 and either Education 211 or Education 215 in their Sophomore year.

A student intending to work for a major in Education with concentration in Elementary Education is advised to take either option (b) or (c) above. He is required to take Education 245-246 as part of his course requirements in Education.

2. Teaching Diploma. Requirements include Education 211, 212, 215, 216 and 6 credit hours from a selection of Education 241-256 courses. A minimum general average of 70 is required.

A student may work for the Teaching Diploma under any one of the following conditions.

- (a) If he is pursuing a major in Education (See I.1. above).
- (b) If he is pursuing a major in another Department offering subject matter taught in the elementary or secondary school.
- (c) If he is pursuing an Interdepartmental Major in two Departments at least one of which offers subject matter taught in the elementary or secondary school (for Interdepartmental Majors see description under other Departments).

(d) If he is pursuing a Teaching Major in another Department (for Teaching Majors see description under subject matter Departments).

The approval of the Department of Education to work for the Teaching Diploma is required in all cases. In the case of an Interdepartmental Major a student may work for the Teaching Diploma only when his Interdepartmental Major combines two Departments in any one of the following categories: (1) Basic and Natural Sciences, (2) Humanities, (3) Social Sciences, and (4) Humanities and Social Sciences. At least one of his majors should be covered in the course sequence Education 241-256.

A student may work for the Teaching Diploma after he receives his Bachelor's degree. Holders of Bachelor's degrees from this University may qualify for the Diploma upon completion of the required 18 credit hours. Holders of a Bachelor's degree from other universities may qualify for the Teaching Diploma upon completion of 30 credit hours at this University, 18 of which are the Teaching Diploma courses and the rest in subject matter. A minimum general average of 70 is required in Education courses as well as in subject matter courses. Such candidates may be exempted from 6 credit hours of the sequence Education 241-256 on the basis of satisfactory teaching experience of at least two years, in which case a student will take two advanced seminars instead of these 6 credit hours.

II. Graduate Programs

The graduate program may be completed in one year by a full-time student whose undergraduate preparation includes the Teaching Diploma requirements. Other students are likely to require approximately two years to complete the requirements. It is also possible for a student to complete this program in four or five consecutive summers.

The graduate program in the Department of Education provides special preparation in five years: (1) Comparative Foundations of Education; (2) Educational Administration and Supervision; (3) School Counseling; (4) Teaching in Elementary Teachers Colleges; and (5) Teaching of Subject Matter in Secondary Schools. A core program is required for all these areas, in addition to which a student takes a number of courses in his special area of study.

The Department of Education, in conjunction with the Center for English Language Research and Teaching, offers a program leading to a Master's degree in the Teaching of English as a Foreign Language. In addition to general University requirements, admission requirements for this program are: (a) a minimum of one year's experience in teaching English and (b) a score of 600 or above on the English Entrance Examination. Graduates of this University are not required to take the English Entrance Examination. If they hold a B.A. in English plus the Teaching Diploma, requirements for this program include 24 credit hours plus a thesis or 30 credit hours plus a project. Graduates whose B.A. is in a field other than English and who do not hold the Teaching Diploma are required to complete a minimum of 36 credit hours plus a thesis or a project.

Similarly a Master's degree in the Teaching of Science or Mathematics is offered by the Department through the Science and Mathematics Education Center in conjunction with the respective Sciences and Mathematics Departments. For students who hold a Bachelor's degree in science or mathematics and the Teaching Diploma from this University, the requirement is 24 credit hours plus a thesis or 30 credit hours plus a project. In other cases additional courses may be required depending on the student's undergraduate preparation.

Courses offered by other Departments may be applied toward a concentration

in Education with the approval of the chairman of the Department of Education. (Education 324, 325 and 328 are among the requirements for students working for M.A. in the Teaching of English).

211 *General Foundations of Education*. 3.0; 3 cr; annually.

212 *Principles and Methods of Teaching*. 2.2; 3 cr; annually.

213 *Methods of Educational Administration*. 3.0; 3 cr; annually.

215 *Psychology of Education*. 3.0; 3 cr; annually. Prerequisite: a course in general psychology, or consent of instructor.

216 *Philosophy of Education*. 3.0; 3 cr; annually.

217 *History of Education*. 3.0; 3 cr.

223 *Educational Guidance and Counseling*. 3.0; 3 cr; annually.

225 *Child Development*. 3.0; 3 cr; annually.

227 *Statistics in Education*. 3.0; 3 cr; annually. Designed for Arts students who have not taken Mathematics 101 and 102 or equivalent. Students cannot receive credit for this course and any other introductory statistics course such as Economics 213, Mathematics 207 or 233.

228 *Theory and Methods of Testing*. 3.0; 3 cr; annually.

229 *Testing of Children's Intelligence*. 3.0; 3 cr; annually. Prerequisite: 228, or consent of instructor.

231 *Audio-Visual Methods and Materials* 3.3; 4 cr; Prerequisite: consent of instructor.

232 *Production of Teacher-Made Materials*. 3.2; 4 cr. Prerequisite: consent of instructor.

Courses in Methods of Teaching

(Courses 241-256 inclusive deal with teaching of a certain subject matter. This includes investigation into the nature of the subject to be taught as well as actual classroom observation and practice teaching).

241 and **242** *The Teaching of Arabic*. 2.2; 3 cr; annually. Prerequisites: any three of the following Arabic courses, or consent of the instructor: 203, 204, 211, 212, 215, 216, 221, 222, 233, 234, 235 and 236.

243 and **244** *The Teaching of English*. 2.2; 3 cr; annually. Prerequisites: English 228, 231, and consent of instructor.

245 and **246** *Teaching in Elementary School*. 2.2; 3 cr; annually.

247 and **248** *The Teaching of Art*. 2.2; 3 cr; annually. Prerequisite: Art 223 (may be taken simultaneously but only with the consent of instructor). A section of this course is given with emphasis on teaching of music. Prerequisite: consent of instructor.

249 and **250** *The Teaching of Geography*. 2.2; 3 cr; annually. Prerequisite: consent of instructor.

251 and **252** *The Teaching of History*. 2.2; 3 cr; annually. Prerequisites: three one-semester history courses at the university level, or consent of instructor.

- 253 and 254** *The Teaching of Mathematics*. 2.2; 3 cr; annually. Prerequisite: a minimum of 12 credits in mathematics courses numbered 200 or above, or consent of instructor.
- 255 and 256** *The Teaching of Science*. 2.2; 3 cr; annually. Prerequisite: a minimum of 12 credits in relevant science courses numbered 200 or above.
- 301** *Seminar in the History and Philosophy of Education*. 3.0; 3 cr; annually. Development of Western educational thought and practice from the age of Pericles to the present day, studied from primary sources.
- 302** *Seminar in the History and Philosophy of Arab Education*. 3.0; 3 cr; alternate years. Studied from primary sources.
- 305** *Foundations of Science Education*. 3.0; 3 cr; alternate years.
- 306** *Recent Developments in Science Education*. 3.0; 3 cr; alternate years.
- 308** *Seminar in Foundations of Elementary Education*. 3.0; 3 cr; annually.
- 309** *Foundations of Mathematics Education*. 3.0; 3 cr; alternate years.
- 310** *Recent Developments in Mathematics Education*. 3.0; 3 cr; alternate years.
- 311** *Seminar in Supervision of Instruction*. 3.0; 3 cr; annually.
- 312** *Seminar in Economics of Education and School Finance*. 3.0; 3 cr; annually.
- 313** *Seminar in Educational Administration*. 3.0; 3 cr; annually.
- 314** *Comparative Education*. 3.0; 3 cr; alternate years.
- 315** *Psychology of Education (Advanced)*. 3.0; 3 cr; annually.
- 316** *Comparative Study of Middle Eastern Education*. 3.0; 3 cr; alternate years.
- 317** *Theory and Methods of Testing*. 3.0; 3 cr; alternate years.
- 318** *Test Construction in Education*. 3.0; 3 cr; alternate years.
- 320** *Seminar in Human Development*. 3.0; 3 cr; annually.
- 321** *General Research Methodology in Education*. 3.0; 3 cr; annually.
- 323** *Experimental Research in Education*. 3.0; 3 cr; annually.
- 324** *Problems of Teaching Reading and Literature*. 3.0; 3 cr; annually.
- 325** *Problems of Teaching Writing and Composition*. 3.0; 3 cr; annually.
- 326** *Theory and Design of Curriculum*. 3.0; 3 cr; annually.
- 327** *Seminar in Rural Education*. 3.0; 3 cr; alternate years.
- 328** *Seminar in TEFL*. 2.2; 3 cr; annually.
- 329** *Seminar in Education and Social Change*. 3.0; 3 cr; annually.
- 330** *Practicum in Guidance and Counseling* 2.4; 4 cr; annually.
- 331** *Field Experience in Guidance and Counseling*. 1.2; 2 cr; annually.
- 332** *Seminar in Educational Planning for Social and Economic Development*. 3.0; 3 cr; annually.

390 *Special Topics*. 3.0; 3 cr; annually. May be repeated for credit with consent of the Department:

- a. Politics of Education;
- b. Tutorial in Counseling;
- c. Tutorial in the Teaching-Learning Process;
- d. Education of the Gifted;
- e. Problems and Texts in the History of Education;
- f. Problems and Texts in the Philosophy of Education;
- g. A Study in Depth of an Educational System;
- h. Student Unrest and the Future of Education;
- i. Women's Education;
- j. Technical and Vocational Education;
- k. International Education and the Contemporary World;
- l. Problems and Issues in Higher Education;
- m. Programmed Instruction;
- n. Others.

399 *M.A. Project or Thesis*.

DEPARTMENT OF ENGLISH

Chairman: Bushrui, S.

Professors: Blackstone, B.; Bratton, N.; Capps, J. (Visiting); Dajani, N.; D'Amico, J. (Visiting); Khairallah, G.; Lowe, J.; Melikian, A.; Munro, J.; Murphy, M.; Read-Collins, N.; Scott, E.; Snider, P. (Visiting).

Lecturers: Hallab, M.; Kankashian, I.; Taylor, G.

Instructors: Fraga, J.; Gordon, A.; Hayder, A.; Manuelian, P.; Maple, R.; Sabri, A.; Salam, J.

The Department of English offers courses in communication skills required by the University as part of its graduation requirements, and also programs leading to both the B.A. and the M.A. degrees. Students wishing to major in English must first secure the approval of the Department, must have received a grade of 75 or more in English 201, and a grade of 70 or more in Cultural Studies 201, 202. Once they have been accepted by the Department, they may choose any one of three options: a) Literature; b) Language; c) Mass Communications. If they wish to major in either Literature or Language, they must also take English 205 and 207 in their Sophomore year; permission to take these courses later will be given only as a rare exception, and exemption from them will be allowed only if the Department is satisfied that the student has taken their equivalent elsewhere.

The requirements for the *Literature Major* are as follows: English 212, 226 (prerequisite: European Literature 214), 227, 229; either 217 or 221; either 224 or 225; two courses from among 210, 211, 214, 215, 216; and two more from among 218, 219, 220, 222, 232, 292.

The requirements for the *Language Major* are as follows: English 213, 227, 228, 229, 231, 294; either 217 or 222; either 219 or 220; either 224 or 225; and one additional course from among those numbered from 210 to 226.

Both Literature and Language majors will be required to keep themselves abreast

of the historical background of their literature courses— a reading list will be recommended for this purpose— and students' knowledge of the background may be tested in the examinations connected with each course, as well as by quizzes, and possibly term papers.

The requirements for the *Mass Communications Major* are as follows: English 243, 247, 249, 251; four courses from among English 244, 252, 253, 254, 255h, 256, 257, 258, 259; English 236; English 295; and one course from among those numbered English 210 and above. In addition students must take Fine Arts 236. Finally, Mass Communications Majors are encouraged to take elective courses which appear to have special relevance for those intending to work in the mass media. All such courses must be approved by the Department.

The *Communication Skills Program* consists of a series of progressively more advanced courses providing training in communication skills, both oral and written, with emphasis on the mechanics and organization of expression, vocabulary enrichment, and practice in extensive and intensive reading. The Program also includes instruction in various study skills, culminating in the writing of a full-scale research paper.

Freshmen (Standard Sequence)

103 *English Communication Skills*. 3.2; 4 cr; annually (Fall semester).

104 *English Communication Skills*. 3.2; 4 cr; annually (Spring semester). Prerequisite: English 103.

Freshmen (Advanced Sequence)

105 *English Communication Skills*. 4.0; 4 cr; annually (Fall semester). Prerequisite: Score 625 on English Entrance Examination, or its equivalent.

106 *English Communication Skills*. 4.0; 4 cr; annually (Spring semester). Prerequisite: English 105.

Sophomores

134 *English Communication Skills*. 3.0; 4 cr; annually. Prerequisite: score 500-575 on English Entrance Examination, or its equivalent. (For Sophomores).

201 *Advanced English Communication Skills*. 3.0; 3 cr; annually. Prerequisites: 103 and 104, or 134, or their equivalents.

Library Orientation. 0 cr. On the effective use of libraries. Required of all Arts and Sciences students. Usually taken in conjunction with English 201, exemption from which does not, however, provide exemption from this course.

Graduates

202 *English Communication Skills for Graduate Students*. 3; no credit; annually. (A special course open only to graduate students deficient in English) Prerequisite: score 500-575 on English Entrance Examination, or its equivalent.

Literature

The Literature Program in the Department of English has a dual purpose. It provides the humanistic discipline and training necessary for those who wish to obtain an education based upon wide reading and literary study, and at the same time provides a structure of courses likely to be useful to those who intend to go to graduate school. There is a variety of courses representing a corresponding variety

of critical attitudes and approaches, and great importance is attached to the cultivation of a vigorous, though disciplined, independence of mind, and that awareness and sensitivity to language in all its forms which is a prerequisite to the understanding of literature. In all this the program attempts to avoid narrow or restrictive specialization.

- 205** and **207** *Survey of English Literature*. 3.0; 3 cr; annually.
- 210** *Introduction to English Medieval Literature*. 3.0; 3 cr; alternate years.
- 211** *Elizabethan and Jacobean Drama*. 3.0; 3 cr; annually.
- 212** *Shakespeare (Poems, Sonnets, Early Comedies, Histories)*. 3.0; 3 cr; annually.
- 213** *Shakespeare (Tragedies, Late Comedies, Criticism)*. 3.0; 3 cr; annually.
- 214** *Non-Dramatic Literature of the English Renaissance from Skelton to Crashaw*. 3.0; 3 cr; annually.
- 215** *Literature of the Seventeenth Century*. 3.0; 3 cr; annually.
- 216** *Literature of the Eighteenth Century Excluding the Novel*. 3.0; 3 cr; annually.
- 217** *The English Novel to 1800*. 3.0; 3 cr; alternate years.
- 218** *Dr. Johnson and his Circle; the Pre-Romantics*. 3.0; 3 cr; annually.
- 219** *The Romantic Movement*. 3.0; 3 cr; annually.
- 220** *Victorian Literature Excluding the Novel*. 3.0; 3 cr; annually.
- 221** *The Nineteenth Century English Novel*. 3.0; 3 cr; alternate years.
- 222** *English Literature, 1880-1920*. 3.0; 3 cr; annually.
- 223** *Twentieth Century British Literature*. 3.0; 3 cr; alternate years.
- 224** *American Literature to 1900*. 3.0; 3 cr; annually.
- 225** *American Literature from 1900*. 3.0; 3 cr; annually.
- 226** *Literary Criticism*. 3.0; 3 cr; annually. Prerequisite: European Literature 214.
- 245** *The Middle East in English Literature*. 3.0; 3 cr.
- 290** *Tutorial*. 3-6 cr; offered on demand. Prerequisite: an average of 82 or above in the major program, and consent of instructor.
- 292** *Seminar for English Majors (in Literature)*. 3-6 cr; annually. (Restricted to Seniors).

Language

The language Program consists of five courses in literature and five in language. The latter are intended mainly to provide an appropriate linguistic background for prospective teachers of English, but they also constitute a sound base for those intending to pursue graduate work in linguistics.

- 227** *Introduction to Language*. 3.0; 3 cr; annually.
- 228** *Phonetics*. 3.2; 3 cr; annually.
- 229** *History of the English Language*. 3.0; 3 cr; annually.
- 231** *Modern English Grammar*. 3.0; 3 cr; annually.
- 236** *Advanced Composition*. 3.0; 3 cr; annually. Prerequisite: consent of instructor.

291 *Tutorial*. 3-6 cr; offered on demand. Prerequisite: an average of 82 or above in the major program, and consent of instructor.

294 *Advanced English Grammar*. 3-6 cr; annually. Prerequisite: English 231.

Mass Communications

Instruction in Mass Communications is directed toward the study of effective and responsible communication behavior and also the institutions of mass communication. Emphasizing the news-information-opinion functions of the media, and attempting to blend theory with practical application, the ultimate concern of the program is to train people to use the various news media as responsible agents of national development.

243 *Introduction to Mass Communications*. 3.0; 3 cr; annually.

244 *Radio and Television*. 2.2; 3 cr; annually. Prerequisite: English 249.

247 *Essentials of Communication*. 3.0; 3 cr; annually.

249 *Basic News Communication*. 2.2; 3 cr; annually. Prerequisite: English 247.

251 *Seminar in Mass Communications and Modern Society*. 3.0; 3 cr; annually. Prerequisite: English 243, and consent of instructor.

252 *Feature Writing*. 3.0; 3 cr; annually. Prerequisite: English 249, or consent of instructor.

253 *Interpreting the News*. 3.0; 3 cr; annually. Prerequisite: English 249, or consent of instructor.

254 *Advanced Practicum*. 1.4; 3 cr; annually. Prerequisite: English 249.

255 *International Communications Systems*. 3.0; 3 cr; annually.

256 *Seminar in Mass Media and National Development*. 3.0; 3 cr; annually.

257 *Principles of Public Relations*. 3.0; 3 cr; annually. Prerequisite: consent of instructor.

258 *Selected Topics in Mass Communications*. 2-6 cr; annually. Prerequisite: consent of instructor.

259 *Field Projects*. 1-4 cr; annually. Prerequisite: consent of instructor.

295 *Translation Theory and Practice: Arabic-English, English-Arabic*. 3.0; 3 cr; annually. (For Arabic-speaking students).

M.A. Program

The M.A. degree is a professional qualification and therefore involves both the acquisition of a number of skills, and the development of an explicit and disciplined awareness of a variety of scholarly and critical problems. The M.A. program should provide an opportunity for thought and wide reading, so that each student may devote himself to the study of his choice, without having to become preoccupied with the mere accumulation of credits.

Students wishing to take an M.A. degree in the teaching of English as a foreign language (TEFL) should refer to the listings under Department of Education above.

301 *Introduction to Bibliography and Methods of Research*. 3.0; 3 cr; annually.

302 *Selected Topics in English Literature Before 1800*. 3.0; 3 cr; annually. Content to be determined by instructor.

303 *Selected Topics in English Literature After 1800*. 3.0; 3 cr; annually. Content to be determined by instructor.

- 304** *Selected Topics in American Literature*. 3.0; 3 cr; annually. Content to be determined by instructor.
- 305** *Graduate Tutorial in English or American Literature*. 3.0; 3 cr. Specific topics to be announced annually. Restricted enrollment.
- 326** *Advanced Translation Theory and Practice: Arabic into English*. 3.0; 3 cr; annually.
- 329** *Students in Old and Middle English Literature*. 3.0; 3 cr; annually.
- 341** *Advanced Phonology*. 3.0; 3 cr; annually. Prerequisite: 228.
- 342** *Theoretical Linguistics*. 3.0; 3 cr; annually. Prerequisites: 231, 294.
- 343** *Comparative and Historical Linguistics*. 3.0; 3 cr; annually. Prerequisites: 341 and 342, or consent of instructor.
- 344** *Graduate Tutorial in Linguistics*. 3 cr; offered on demand.
- 399** *M.A. Thesis*.

DEPARTMENT OF EUROPEAN LANGUAGES AND LITERATURE

Chairman : Boecker, E.

Professors : Alsleben, B. (Visiting) ; Khairallah, G. ; Madec, M. (Visiting).

Lecturers : Bross, J. ; Krüger, M. ; Montégu, J. ; Proust, D.

Instructor : Amyuni, M.

The Department offers programs leading to both the B.A. and the M.A. degrees. Students wishing to major in the Department must secure the approval of the Department and must have received a grade of 70 or more in English 201 and in Cultural Studies 201 and 202. They must take 12 credits in Foreign Language courses numbered above 200, and 18 credits in European Literature courses, including 214, 291 and one of 211, 212 and 213. The remaining credits required for the major are to be distributed, as recommended by the Department advisor, among courses in not less than two and not more than three specific literatures offered at this University (i.e. at this time: Arabic, English, French, German), with the understanding that usually not more than 12 of these credits will be taken in German and/or French literature. Students wishing to major in the Department are strongly advised to take elementary language courses during their Sophomore year.

The Department is prepared to offer graduate work in comparative studies involving Arabic, English, French, German, or Classical Greek and Latin Literature. Graduate students will be expected to have a solid background in at least one other language and literature besides English and/or Arabic. In addition to English 301 (a methods course taught jointly with the English Department), European Literature 302, 303, which are required of all graduate students, each student will have a special program worked out in his area of concentration: within the Department he will study his field by means of graduate seminars and tutorials; in the Departments of Arabic and English he will be able to utilize regularly offered graduate courses, seminars, and tutorials which fit into his specialization. The thesis will involve work in not less than two and (normally) not more than three national literatures. The graduate level courses are intended to permit intensive study in the area from which the thesis will be chosen, but they should not normally be on the thesis subject itself.

Since seminars and tutorials will vary in subject matter from semester to semester, a student may take such courses more than once. The graduate courses assume

that the student has already met the requirements for the B.A. in European Literature; any undergraduate deficiencies must be made up before enrolling in such courses.

Classics

211 and 212 *Introduction to Greek*. 3.0; 3 cr; alternate years.

213 and 214 *Introduction to Latin*. 3.0; 3 cr; alternate years.

221 and 222 *Second Year Greek*. 3.0; 3 cr. Review of grammar and reading of original texts. Prerequisites: 211 and 212, or equivalent.

223 and 224 *Second Year Latin*. 3.0; 3 cr. Review of grammar and reading of original texts. Prerequisites: 213 and 214, or equivalent.

303 *Graduate Tutorial in Classical Greek or Latin Literature*. 3.0; 3 cr.

European Literature

209 *Introduction to Literature*. 3.0; 3 cr; each semester. (Required of Engineering students, but open to Arts and Sciences students as an elective. *Not* open to Literature majors).

211 *Classical Mythology, and its Use in Later Literature and Art*. 3.0; 3 cr; alternate years.

212 *Classical Epic and its Influence*. 3.0; 3 cr; alternate years.

213 *Classical Drama and its Influence*. 3.0; 3 cr; alternate years.

214 *Literary Criticism*. 3.0; 3 cr; annually. History of literary criticism from the beginning to the early 19th century. This course is prerequisite for English 226.

215 *East-West Literary Relations and Influences*. 3.0; 3 cr; conducted in English, but texts to be read whenever possible in the original languages; specific content varies from year to year.

216 *European Drama*. 3.0; 3 cr. Specific content varies from year to year.

217 *European Novel*. 3.0; 3 cr. Specific content varies from year to year. Prerequisite: Junior standing.

291 *Seminar in European Literature*. 3.0; 3 cr. Restricted to Seniors and Graduate students in any literature, including English and Arabic.

302 *Theory of Literature*. 3.0; 3 cr. Prerequisites: European Literature 214 and English 226, or equivalent.

303 *Graduate Seminar in European Literature*. 3.0; 3 cr.

304 *Graduate Tutorial in European Literature*. 3.0; 3 cr.

399 *M.A. Thesis*.

NOTE: Students will be allowed to take 215, 216, 217 and 291 for credit more than once, if the Department is satisfied that the change in specific content warrants this arrangement.

French

201 and 202 *Elementary French*. 3.1; 3 cr; annually. Restricted to students with no knowledge of French; course includes one hour per week of language laboratory.

211 and 212 *Intermediate French*. 3.0; 3 cr; annually. Prerequisites: 201 and 202, or consent of instructor.

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221 and 222 *Advanced French*. 3.0; 3 cr; annually. Study of literary texts. Prerequisites: 201 and 202, or consent of instructor.

231 *French Classicism*. 3.0; 3 cr; annually. Prerequisite: 222, or consent of instructor.

232 *French Romanticism*. 3.0; 3 cr; alternate years. Prerequisite: 222, or consent of instructor.

233 *The French Novel up to the End of the Nineteenth Century*. 3.0; 3 cr; alternate years. Prerequisite: 222, or consent of instructor.

234 *French Literature of the Sixteenth Century*. 3.0; 3 cr; alternate years. Prerequisite: 222, or consent of instructor.

235 *French Literature of the Eighteenth Century*. 3.0; 3 cr; alternate years. Prerequisite: 222, or consent of instructor.

236 *French Literature of the Twentieth Century*. 3.0; 3 cr; annually. Prerequisite: 222, or consent of instructor.

303 *Graduate Tutorial in French Literature*. 3.0; 3 cr.

German

201 and 202 *Elementary German*. 3.1; 3 cr; annually. Course includes one hour per week of language laboratory. Students cannot receive credit for both 201, 202 and 203, 204.

203 and 204 *German for Reading Knowledge*. 3.0; 3 cr; annually. Not open to Literature students. Students cannot receive credit for both 201, 202 and 203, 204.

211 and 212 *Intermediate German*. 3.0; 3 cr; annually. Prerequisite: 201 and 202 or consent of instructor.

221 and 222 *Advanced German*. 3.0; 3 cr; annually. Study of literary texts. Prerequisite: 212, or consent of instructor.

291 *Undergraduate Tutorial in German Literature*. 3.0; 3 cr.

303 *Graduate Tutorial in German Literature*. 3.0; 3 cr.

DEPARTMENT OF FINE AND PERFORMING ARTS

Chairman : Olsen, G.

Professors : Arnita, S. ; Carswell, J. ; Frick, A. ; Smith, P.H.

Lecturers : Etinoff, N. ; Hovey, A. ; Shebaya, P. ; Taky Deen, D.

Instructors : Jones, J. ; al-Khal, H. ; Kurani, D. ; Satamian, K.

The Department of Fine and Performing Arts offers three programs leading to the B.A. degree. Students may major in Art, Music or Theater.

The requirements for the *Art Major* are as follows: Art 211, 214 or 215, 221, 222, 223, 225, 227, 228, 229, 230, 231, 232, 233, 234, 236, 237, 238 and one course selected from each of the following disciplines: Philosophy 255 or 256; Psychology 201; Sociology 210 or 271; and at least one course to be chosen from History and Archaeology.

The requirements for the *Music Major* are as follows: Music 244, 245, 246, 247, 248, 250, 252, plus either one of the following two courses: 251 or 253; plus any four courses to be selected from the following: 254, 255, 256, 257, 258, 259, 260 and 261. Students wishing to emphasize Composition and Conducting should

take the sequence 254, 255, 256 and 257. Students wishing to emphasize Musicology should take the sequence 258, 259, 260 and 261. The prospective B.A. candidate must also achieve a required level of proficiency in musical performance. He may acquire instruction outside AUB if necessary. The Faculty of the Music section of the Department of Fine and Performing Arts will ultimately pass on his proficiency. All candidates will be expected to perform on at least two instruments. The combinations may be the piano and a wind instrument; the piano and a stringed instrument; or a wind and a stringed instrument, in which case the candidate should also have a knowledge of the piano.

The requirements for the *Theater Major* are as follows: Theater 264, 265, 266, 269, 270, 277 and 278. Students wishing to emphasize Acting should take the sequence 267, 268, 271 and 272. Students wishing to emphasize Production should take the sequence 273, 274, 275 and 276. In addition all students must take Art 231 and Music 244. Finally, four courses must be selected from among the following: Arabic 240; English 211, 213, 226, 228; European Literature 213, 214, 216; German 213; and Philosophy 255, 256.

Art

The Art section assumes that each of its students has a desire to make some worthwhile statement through visual media. Each student will seek to find his own best means of expression by exposure to many different art forms. The student must have an awareness of the wealth of knowledge of his time. He will take courses in the liberal arts to provide a foundation for future specialization. His first art course will be the Introduction to the Visual Arts, a general course in the appreciation of arts and the vocabulary of the artist. The student will then take courses in drawing and design to give him fundamental visual tools. From this foundation the student will undertake study in specific media: painting, ceramics, jewelry, sculpture, crafts, printmaking. Knowledge of the heritage of the Arts will be developed in courses in the history of art. In his Senior year the art student will elect tutorials under the professor of his choice in a specific field of interest.

211 *Introduction to the Visual Arts*. 3.0; 3 cr; annually.

214 and **215** *Tutorial*. 0.6; 3 cr; annually. Prerequisite: consent of instructor.

221 *Beginning Painting*. 0.6; 3 cr; annually.

222 *Intermediate Painting*. 0.6; 3 cr; annually. Prerequisite: 221.

223 *Jewelry Making*. 0.6; 3 cr; annually.

225 *Ceramics*. 0.6; 3 cr; annually.

227 *Beginning Design*. 0.6; 3 cr; annually.

228 *Intermediate Design*. 0.6; 3 cr; annually. Prerequisite: 227.

229 *Beginning Drawing*. 0.6; 3 cr; annually.

230 *Intermediate Drawing*. 0.6; 3 cr; annually. Prerequisite: 229.

231 *History of Western Art: Prehistory through Renaissance*. 3.0; 3 cr; annually. Prerequisite: 211.

232 *History of Western Art: Mannerism to the Present*. 3.0; 3 cr; annually. Prerequisite: 211.

233 *Beginning Sculpture*. 0.6; 3 cr; annually.

234 *Intermediate Sculpture*. 0.6; 3 cr; annually. Prerequisite: 233.

236 *Printmaking*. 0.6; 3 cr; annually.

237 *Advanced-Intermediate Painting*. 0.6 ; 3 cr ; annually. Prerequisite : 222.

238 *Advanced Painting*. 0.6 ; 3 cr ; annually. Prerequisite : 237.

Music

The courses in the Music section have been devised to give broad understanding and experience to students who wish to become professional musicians in the field of either *Musicology* or *Composition and Conducting*. Those who look to radio, television, and cinema as a possible livelihood will find expert musical training available in these media. Music students receive a deep grounding in techniques of music theory and the history of music. Careful consideration has been given to the problems that are encountered by students who may not have had a full music education in their pre-university studies. Techniques are devised to guide students individually with the aim of assisting each to realize his or her own unique capabilities.

240 *Introduction to the Art of Music I*. 3.0 ; 3 cr ; annually.

241 *Introduction to the Art of Music II*. 3.0 ; 3 cr ; annually.

242 *Applied Choral Music I*. 1.0 ; 1 cr ; annually. Prerequisite: consent of instructor.

243 *Applied Choral Music II*. 1.0 ; 1 cr ; annually. Prerequisite: consent of instructor.

244 *History of Music: Prehistoric through Baroque*. 3.0 ; 3 cr ; annually.

245 *History of Music: Classical through Contemporary*. 3.0 ; 3 cr ; annually.

246 *Elements and Theory of Music I*. 3.0 ; 3 cr ; annually.

247 *Elements and Theory of Music II*. 3.0 ; 3 cr ; annually. Prerequisite : 246.

248 *Counterpoint I*. 3.0 ; 3 cr ; annually. Prerequisite : 247.

249 *Counterpoint II*. 3.0 ; 3 cr ; annually. Prerequisite: 248, or consent of instructor.

250 *Harmony I*. 3.0 ; 3 cr ; annually. Prerequisite : 247, or consent of instructor.

251 *Harmony II*. 3.0 ; 3 cr ; annually. Prerequisite : 250.

252 *Formal Analysis I*. 3.0 ; 3 cr ; annually. Prerequisite : 247.

253 *Formal Analysis II*. 3.0 ; 3 cr ; annually. Prerequisite : 252.

254 *Advanced Theory and Composition I*. 3.0 ; 3 cr ; alternate years. Prerequisites : 244 through 253.

255 *Advanced Theory and Composition II*. 3.0 ; 3 cr ; alternate years. Prerequisite : 254.

256 *Principles of Orchestration and Conducting I*. 3.0 ; 3 cr ; alternate years. Prerequisites : 244 through 253.

257 *Principles of Orchestration and Conducting II*. 3.0 ; 3 cr ; alternate years. Prerequisite : 256.

258 *Early Music through Bach*. 3.0 ; 3 cr ; alternate years. Prerequisite: consent of instructor.

259 *The Classical Period*. 3.0 ; 3 cr ; alternate years. Prerequisite: consent of instructor.

260 *Beethoven and the Romantics*. 3.0 ; 3 cr ; alternate years. Prerequisite: consent of instructor.

261 *Music of the Twentieth Century*. 3.0; 3 cr; alternate years. Prerequisite: consent of instructor.

262 *Instrumental Performance Class*. 1.4; 3 cr; annually. Prerequisite: consent of instructor.

263 *Instrumental Recital Class*. 1.4; 3 cr; annually. Prerequisite: consent of instructor.

Theater

The Theater section offers a program that is tailored to the training of talent in all aspects of theater (including radio, television and film). Two areas of concentration are presently offered, one in *Acting* and one in *Production*. Acting students will receive expert training in improvisation, pantomime, movement, voice production and speech. Production students will concentrate on the art and craft of directing, stage-management, stage costume design, lighting, and make-up. Prospective actors, directors, technicians, designers, playwrights, and educators will find unique opportunity to achieve both professional and academic competence in their future fields. Ample occasion for creative work is given, through workshop classes, the Drama Club and occasional participation in semi-professional productions.

264 *Introduction to the Elements of Theater*. 3.0; 3 cr; annually.

265 *Introduction to the Various Forms of Theatrical Presentation*. 3.0; 3 cr; annually.

266 *Script Interpretation*. 3.0; 3 cr; alternate years.

267 *Voice and Speech I*. 2.2; 3 cr; annually.

268 *Voice and Speech II*. 2.2; 3 cr; annually. Prerequisite: 267.

269 *Improvisation I*. 1.4; 3 cr; annually.

270 *Improvisation II*. 1.4; 3 cr; annually. Prerequisite: 269.

271 *Movement and Mime I*. 1.4; 3 cr; annually.

272 *Movement and Mime II*. 1.4; 3 cr; annually. Prerequisite: 271.

273 *Stagecraft I*. 2.2; 3 cr; annually.

274 *Stagecraft II*. 2.2; 3 cr; annually. Prerequisite: 273.

275 *Directing I*. 2.2; 3 cr; alternate years.

276 *Directing II*. 2.2; 3 cr; alternate years. Prerequisite: 275.

277 *History of World Theater*. 4.0; 4 cr; alternate years.

278 *History of Manners, Customs and the Arts*. 4.0; 4 cr; alternate years.

279 *Modern and Contemporary Drama*. 3.0; 3 cr; alternate years.

280 *Seminar on Special Topics in Modern World Theater*. 3.0; 3 cr; alternate years. Prerequisite: consent of instructor.

281 *Seminar on Theater in the Middle East*. 3.0; 3 cr; alternate years. Prerequisite: consent of instructor.

282 *Tutorial*. 3.0; 3 cr; annually. Prerequisite: consent of instructor.

283 *Workshop*. 0.6; 3 cr; annually.

DEPARTMENT OF GEOLOGY

Chairman : Beydoun, Z.

Professors : Goedicke, T.; Kafescioglu, I.; Rogers, A.(Visiting); Venkitasubramanyan, C.

The Department of Geology offers programs leading to the degrees of Bachelor of Science and Master of Science in Geology.

Students wishing to major in Geology must secure the approval of the Department and must have taken Freshman Science or its equivalent, and are expected to make up as early as possible any deficiencies in both Chemistry and Physics they may have. They must attain a grade of 70 or more in Geology 201 and then complete the following courses: 202, 207, 210, 211, 212, 213, 214, 215, 219, 221, 222, 223, 224 and 229, making a total of 48 semester unit credits. Advanced students are encouraged to take additional Geology courses in their Senior year provided other requirements permit. One or several field trips form part of some courses and are generally run on Sundays.

Interdepartmental Majors and Programs. Interdepartmental courses are offered in conjunction with the Department of Biology leading to the degrees of Bachelor of Science and Master of Science in Marine Science.

Candidates for the Interdepartmental Major in Marine Science must secure the approval of the two sponsoring Departments and must complete the following requirements: Biology 201, 202, 243, 264, 266, 271; Chemistry 201 and 208; Geology 201, 202, 211, 212, 214, 222, 223 and 271; Physics 204 and 205.

201 *Physical Geology*. 3.2; 4 cr; each semester. Materials, structures, and geological processes of the Earth.

202 *Historical Geology*. 3.0; 3 cr; annually. Geological history as revealed by the rocks and fossil record. Prerequisite: 201.

207 *Map Interpretation*. 1.4; 3 cr; annually. Description and interpretation of geological maps and structures. Prerequisite: 201.

210 *Geomorphology*. 3.0; 3 cr; annually. Land-forms and their evolution. Prerequisites: 201 and 207, or consent of instructor.

211 *Crystallography and Physical Mineralogy*. 1.4; 3 cr; annually. The crystalline state and properties of minerals related to their crystal structure. Prerequisite: Chemistry 101, or consent of instructor.

212 *Optical Mineralogy*. 1.4; 3 cr; annually. Theory of crystal optics and systematic study of common rock forming minerals in thin section. Prerequisite: 211.

213 *Structural Geology*. 2.2; 3 cr; annually. Structures of the earth crust and their interpretation. Prerequisite: 201.

214 *Stratigraphy*. 3.0; 3 cr; annually. The sequence and character of the layered rocks, their facies, formation and correlation. Prerequisites: 201 and 202.

215 *Invertebrate Paleontology*. 1.4; 3 cr; annually. Systematic study of invertebrate fossils. Prerequisite: 202.

219 *Geologic Field Methods*. 0.6; 2 cr; annually in the summer only and prior to 229. Introduction to methods used in geological mapping. Prerequisites: 207, 213 and 214.

221 *Petrology*. 2.2; 3 cr; annually. Composition, origin and occurrence of the rocks; identification from hand specimens and in thin section under the polarizing microscope. Prerequisite: 212.

222 *Sedimentary Petrology and Sedimentology.* 1.4; 3 cr; annually. Petrography of sediments, sedimentary rocks, and their microscopic structures, and techniques in sedimentology. Prerequisites: 212 and 214.

223 *Geological Oceanography.* 3.0; 3 cr; annually. Physical geology, sedimentation and geomorphology of the sea floor. Prerequisites: 210 and 214, or consent of instructor.

224 *Regional Geology.* 3.0; 3cr; annually. Detailed structural geology, stratigraphy, geological history and economic geology of selected regions. Prerequisites: 213 and 214.

229 *Individual Summer Field Work.* 0.18; 6 cr; annually. Offered only in the summer immediately after 219. A complete and independent geological investigation of a designated area and preparation of a detailed geological map and report. Prerequisite: 219.

271 and 272 *Senior Tutorial Course.* 1-3 cr.

M.S. Program

Candidates pursuing the Master of Science Program in Geology may select from the graduate courses offered in the Department, depending on their field of interest, and may also be directed to take undergraduate and graduate courses from departmental course offerings in their chosen fields.

Candidates pursuing the Master of Science Program in Marine Science with emphasis on Geology must take Geology 223, Biology 266, 364 and 365 in addition to other courses in Geology. These will be worked out with advisors and will depend on the candidate's geological background and current geological interests in the field of Marine Science.

303 *Geochemistry.* 3.0; 3 cr. Application of chemical concepts to fundamental geological problems.

304 *Geophysics.* 3.0; 3 cr. Application of physics to the study of the earth and its crust.

306 *Mineral Deposits.* 2.3; 3 cr. Occurrence and classification of mineral deposits and theories of their formation; identification of ore minerals.

307 *Petroleum Geology.* 3.0; 3 cr. Origin, migration and accumulation of petroleum; surface and subsurface exploration methods and exploitation techniques.

313 *Photogeology.* 1.4; 3 cr. Principles of aerial photo interpretation and the construction of planimetric geological maps and mosaics, using the stereoscope.

317 *Micropaleontology.* 2.2; 3 cr. Introduction to the study of various groups of microfossils and their application.

318 *Hydrogeology.* 3.0; 3 cr. Geology of ground water.

320 *Graduate Seminar.* 3.0; 3 cr. A critical discussion of current geological problems.

329 and 330 *Selected Topics in Advanced Geology.* 3.0; 3 cr. May be repeated for credit.

399 *M.S. Thesis.*

DEPARTMENT OF HISTORY AND ARCHAEOLOGY

Chairman: Gordon, D.

Professors: Baramki, D. (Curator of Museums); Khalidi, T.; Mendenhall, G. (Visiting); Salibi, K.; Seeden, H.; Seikaly, S.; Ward, W.; Zayid, M.; Zeine, Z.; Ziadeh, N.; Zurayk, C.

Lecturers: Buheiry, M.; Kouymjian, D.; Montégu, J.; Saidah, R.

History

The Department offers three concentrations in History: Ancient, European, Arab and Near Eastern. In Arab History, a program toward the Ph.D. degree is also available. Requirements for admission to the Department include the approval of the Chairman and a grade of 70 or more in Cultural Studies 201 and 202. Students expecting to work in Arab History must also have a knowledge of Arabic.

Students majoring in History must complete a minimum of 36 credit hours in the Department, including History 285, 286, 291 and 292. In addition, the student must complete 6 credit hours each in two of the following related Departments: Arabic Literature, English Literature, Economics, European Languages and Literature, Philosophy, Political Studies and Public Administration, Religious Studies, Sociology and Anthropology. Detailed programs will be determined by subcommittees of the Department which will advise each student on courses in his major, related Departments, and electives.

101 and 102 *Survey of Modern Europe.* 3.0; 3 cr; annually. Political and cultural development of Europe, 1500-1939.

210 *Introduction to Historical Methodology.* 3.0; 3 cr; alternate years. Methods of historical research and writing.

211 and 212 *Ancient History of the Near East.* 3.0; 3 cr; annually. Historical and cultural survey of Egypt, Turkey, Palestine, Syria, Lebanon and Iraq, from prehistoric times to Alexander the Great.

213 *The Syro-Lebanese Coast in Ancient Times.* 3.0; 3 cr; alternate years. Historical and cultural development of the Phoenician city-states along the Syro-Lebanese coast from Alalakh to Tyre, from prehistoric times to the Persian period.

214 *Law and Society in the Ancient Near East.* 3.0; 3 cr; alternate years. Legal, economic and social institutions of Egypt and Western Asia in pre-classical times, based on readings from original documents in translation.

215 and 216 *History of Greece.* 3.0; 3 cr; alternate years. Political and cultural history of the Aegean Basin to the death of Alexander the Great.

217 and 218 *History of Rome.* 3.0; 3 cr; alternate years. Political, social and cultural history of Rome and the Roman Empire to the founding of Constantinople.

219 *History of the East, 323 to 31 B.C.* 3.0; 3 cr; alternate years. Political and cultural history of the Hellenistic Age from the death of Alexander the Great to the Battle of Actium.

299 and 230 *History of the Arabs.* 3.0; 3 cr; annually. For non-Arabic-speaking students. Political and cultural development of Arab society from the rise of Islam to the establishment of the Ottoman Empire.

231 *History of the Near East from 610 to 1071 A.D.* 3.0; 3 cr; alternate years. From the accession of Heraclius to the Battle of Manzikert.

232 *History of the Near East from 1071 to 1517 A.D.* 3.0; 3 cr; alternate years. The Crusader and the Mameluke periods, from the Battle of Manzikert to the Ottoman conquest of Egypt.

233 *History of the Arabs to 632 A.D.* 3.0; 3 cr; alternate years. From the earliest times to the death of the Prophet. *In Arabic.*

234 *History of the Arabs from 632 to 750 A.D.* 3.0; 3 cr; alternate years. Expansion and development of the Arab Empire from the death of the Prophet to the fall of the Omayyads. *In Arabic.*

235 *History of the Arabs from 750 to 861 A.D.* 3.0; 3 cr; alternate years. The rise of the Islamic Empire and the cultural awakening under the Abbasids. *In Arabic.*

236 *History of the Arabs from 861 to 1258 A.D.* 3.0; 3 cr; alternate years. The Islamic Empire through the period of political instability and decline to the fall of Baghdad in 1258. *In Arabic.*

237 *History of the Ottoman Empire from its Origin to 1800 A.D.* 3.0; 3 cr; annually. History and political and religious institutions of the Ottoman Empire, and relations between Arabs and Turks in the Asiatic possessions of the Empire.

238 *History of the Ottoman Empire and the Arab Near East in the 19th and 20th Centuries, 1800-1920 A.D.* 3.0; 3 cr; annually. The Eastern Question emphasizing the impact of Europe on the Middle East and the emergence of Arab nationalism.

239 *History of the Arab East 1517-1798 A.D.* 3.0; 3 cr; alternate years. The Arab East (Egypt, the Fertile Crescent and Arabia) from the Ottoman conquest to the French occupation of Egypt.

240 *History of the Arab East 1798-1939 A.D.* 3.0; 3 cr; alternate years. The Arab East during the Arab awakening, emphasizing the impact of the West on the Arabs and their reaction in the domain of politics and culture.

241 *History of Persia in the 19th Century.* 3.0; 3 cr; alternate years. Political, social and cultural institutions of Persia, with special emphasis on diplomatic relations with Europe.

244 *History of North Africa 1800-1939 A.D.* 3.0; 3 cr; alternate years. Political and cultural history of the North African countries (Libya, Tunisia, Algeria and Morocco) in the 19th and early 20th centuries.

245 *History of Lebanon 634 to 1920 A.D.* 3.0; 3 cr; alternate years. A history of Mount Lebanon and its neighbourhood from the Arab conquest of Syria until the emergence of the State of Greater Lebanon.

246 *History and Culture of the Armenian People to 1400 A.D.* 3.0; 3 cr. Geographical, historical and racial factors in the creation of the Armenian people; contact and interchange with Persian, Hellenistic, Roman and Christian societies; Christian Armenian culture.

247 *History and Culture of the Armenian People from 1400 A.D. to Modern Times.* 3.0; 3 cr; Armenia under Ottoman, Persian and Russian domination (political, social and cultural aspects); the awakening of the 19th century; the beginning of modern literature; the first World War and the dispersion of the Armenian people; the Armenian Diaspora.

251 *The Middle Ages to 1100 A.D.* 3.0; 3 cr; alternate years. The decline of the Roman Empire and the establishment of the basic institutions of Western medieval civilization.

252 *The High Middle Ages 1100 to 1400 A.D.* 3.0; 3 cr; alternate years. The later Middle Ages and the crisis of the 14th century.

253 *European History 1350-1618 A.D.* 3.0; 3 cr; annually. The changing European civilization of the Renaissance and the Reformation.

254 *European History 1618-1815 A.D.* 3.0; 3 cr.; annually. European History from the Thirty Years' War through the French Revolution.

255 *Europe 1815-1871 A.D.* 3.0; 3 cr; annually. Political and cultural history of Europe from the Congress of Vienna to the Franco-Prussian War.

256 *Europe 1871-1914 A.D.* 3.0; 3 cr; annually. Diplomatic and political events culminating in the First World War, with particular emphasis on the expansion of Europe during its period of world domination and the failure of the European powers to avoid a war.

257 *The Contemporary World 1917 A.D.* 3.0; 3 cr; annually. Contemporary trends in world society.

258 *Main Currents in the History of a Particular Nation.* 3.0; 3 cr. Course content to be determined by instructor, and may vary from year to year. May be repeated for credit.

259 *Main Currents in United States History.* 3.0; 3 cr. Selected topics in American history. Course content to be determined by instructor, and may vary from year to year.

286 *Historical Interpretation.* 3.0; 3 cr; annually. Historical and critical analysis of the major theories and schools of historical interpretation.

291 and **292** *Senior Seminar in History.* 3.0; 3 cr; annually.

301 and **302** *Graduate Seminar in Ancient History.* 3.0; 3 cr.

303 and **304** *Graduate Seminar in Arab and Near Eastern History.* 3.0; 3 cr.

305 and **306** *Graduate Seminar in European History.* 3.0; 3 cr.

321 and **322** *Graduate Tutorial in Ancient History.* 3.0; 3 cr.

323 and **324** *Graduate Tutorial in Arab and Near Eastern History.* 3.0; 3 cr.

325 and **326** *Graduate Tutorial in European History.* 3.0; 3 cr.

327 *Historical Writing.* 3.0; 3 cr; annually. Development of historical writing and of man's conceptions of the aim, scope and method of history.

360 *Historiography and Documentation.* 3.0; 3 cr. Tutorial course on the use and evaluation of original documents in history.

399 *M.A. Thesis.*

499 *Ph.D. Thesis in Arab History.*

Archaeology

The Department offers a Master's degree program in Archaeology.

211 and **212** *Methodology.* 3.0; 3 cr. Examination of archaeological sites and ancient monuments in the Near East, and of the methods used in archaeological excavations and interpretation of results. The course, in addition to classroom lectures, will include visits under expert guidance to historical sites both virgin and under excavation.

213 *Archaeology of the Near East: the Prehistoric Period and Bronze Age.* 3.0; 3 cr. Survey of the development of man's material culture to ca. 1200 B.C. The advance from the hunting to the agricultural stage of culture, the growth of villages into towns and cities, the development of industry, monumental architecture and representational art, and the trend towards uniformity in material culture will be surveyed according to the archaeological record.

214 *Archaeology of the Near East: the Iron Age.* 3.0; 3 cr. Survey of the archaeological remains of the Near East ca. 1200 B.C. to the Persian period, with special stress on the cultural impact of ethnic movements in the Near East during that

period. The leading role of the Phoenicians in the diffusion of elements of civilization will be emphasized with reference to the archaeological record.

215 and **216** *Archaeology of the Greek World*. 3.0; 3 cr. Survey of the archaeology of the Aegean Basin with an emphasis on the art and architecture of Classical Greece.

217 and **218** *Hellenistic and Roman Archaeology*. 3.0; 3 cr. Examination of the material records of Alexander's conquest of the Near East, and the subsequent Hellenization of the area down to the end of the Roman period.

301 and **302** *Graduate Tutorial Course*. 3.0; 3 cr. Prerequisites: 211, 212.

303 and **304** *Archaeology of Palestine*. 3.0; 3 cr. Prerequisites: 211, 212.

307 and **308** *Numismatics of the Near East*. 3.0; 3 cr. Prerequisites: 211, 212.

309 and **310** *Archaeology of Phoenicia with Special Reference to the Excavation of Byblos and Ras Shamra-Ugarit*. 3.0; 3 cr. Prerequisite: 211; a knowledge of French is essential.

399 *M.A. Thesis*.

DEPARTMENT OF MATHEMATICS

Chairman : Regier, M.

Professors : Ali, J.; Anderson, J. (Visiting); Braidi, S.; Chalabi, A.; Fraga, R.; Hanna, A.; Hamdan, M.; Heymans, P.; Hijab, W.; Kennedy, E.; Khalil, Z.; Mohapatra, R.; Muwafi, A.; Shukla, U.; Yaqub, F.; Yff, P.

Instructor : Fadous, R.

Undergraduate Program

The Department of Mathematics offers two alternative majors, Mathematics and Statistics, each major leading to the degree of B.A. or B.S. The requirements for the B.S. degree include a minimum of 27 credits (18 credits for students entering the University at the Sophomore level) in one or more of the following Departments: Biology, Chemistry, Geology and Physics.

To be acceptable as a major, a student must secure the approval of the Department, must obtain a grade of at least 70 in each of 201 and 202, and a grade of at least 70 in 220 (Statistics option) or an average of at least 70 in 205 and 220 (Mathematics option). Course requirements are as follows: for *Mathematics Major*: 201, 202, 205, 209, and 32 credits in courses numbered 210 and above, including 213, 214, 220, 221, 223, 224, 233, 241; for *Statistics Major*: 201, 202, 205, 209, and 32 credits in courses numbered 210 and above, including 220, 223, 224, 233, 234, 235, 236 or 237, 238.

In addition, the following majors are possible. *Mathematics Teaching Major*: requirements for this major are 201, 202, 205, 209, plus 30 credits in courses numbered 210 and above, including 213, 215, 220, 233, 241, 261, of which 3 credits may be replaced by Philosophy 251; plus requirements of the Education Department for the Teaching Diploma. *Mathematics-Physics Interdepartmental Major*: requirements for this major are Mathematics 201, 202, 205, 213, 241, 261 and at least six more credits in courses numbered 200 and above; Physics 101, 102, 211, 212, 213, 214, 215, 217, 219, and six more credits in Physics courses numbered 210 and above.

Mathematics

- 101** *Introductory College Mathematics*. 3.0; 3 cr; annually. No credit is given to students who take 203. A score of 590 on the Mathematics Placement Examination, Part I, is acceptable for exemption from this course.
- 102** *Calculus and Analytic Geometry I*. 4.0; 4 cr; annually. Prerequisite: 101, or a score of 400 on the Mathematics Placement Examination, Part II.
- 201** *Calculus and Analytic Geometry II*. 4.0; 4 cr; annually. Prerequisite: 102.
- 202** *Calculus and Analytic Geometry III*. 4.0; 4 cr; annually. Prerequisite: 201.
- 203** *Basic Mathematics for Social Sciences*. 4.0; 4 cr; annually. No credit is given to students who take 101.
- 205** *Sets and Algebraic Systems*. 3.0; 3 cr; annually.
- 209** *Digital Computer Programming I*. 1.0; 1 cr. annually.
- 211** *Digital Computer Programming II*. 2.2; 3 cr; annually. Prerequisite: 209 or equivalent.
- 213** *Higher Geometry*. 3.0; 3 cr; annually. Prerequisites: 70 or more in 201 and 202.
- 214** *Introduction to Topology*. 3.0; 3 cr; annually. Prerequisites: 205, and 70 or more in 201 and 202.
- 215** *History of Mathematics*. 3.0; 3 cr. Prerequisite: 202, or consent of instructor.
- 220** *Introduction to Linear Algebra*. 3.0; 3 cr; annually. Prerequisites: 102 and 205.
- 221** *Introduction to Differential Equations*. 3.0; 3 cr; annually. Prerequisite: 202, which may be taken concurrently.
- 222** *Methods of Partial Differential Equations*. 3.0; 3 cr. Prerequisite: 221.
- 223** *Advanced Calculus I*. 3.0; 3 cr; annually. Prerequisites: 205, and 70 or more in 201 and 202.
- 224** *Advanced Calculus II*. 3.0; 3 cr; annually. Prerequisite: 223.
- 227** *Introduction to Complex Variables*. 3.0; 3 cr. Prerequisite: 202.
- 241** *Topics in Algebra I*. 3.0; 3 cr; annually. Prerequisites: 205 and 70 or more in 201 and 202.
- 242** *Topics in Algebra II*. 3.0; 3 cr. Prerequisite: 241.
- 251** *Numerical Analysis*. 3.0; 3 cr. Computer-oriented. Prerequisites: 209 and 202 or equivalent.
- 255** *Applied Mathematics*. 3.0; 3 cr. The topics covered in this course will vary from year to year depending on the interests of students and Faculty.
- 256** *Special Topics in Computer Science*. 3.0; 3 cr. Course content will vary from semester to semester depending on the interest of students and Faculty.
- 261** *Number Theory*. 3.0; 3 cr. Prerequisites: 70 or more in 201 and 202.
- 271** *Set Theory*. 2.0; 2 cr; annually. Prerequisite: 205.
- 293** and **294** *Special Topics in Mathematics*. 1-3 cr. The topics for each year are selected according to the needs of students.
- 295** *Senior Tutorial Course*. 3-6 cr. Directed study in special areas of concentration selected by the student in consultation with a Faculty advisor.

Statistics

- 207** *Elementary Probability and Statistics*. 2.2; 3 cr; annually. Not open to students who qualify for 233.
- 233** *Introduction to Probability and Statistics*. 3.0; 3 cr; annually. Prerequisites: 205, and 70 or more in 201 and 202.
- 234** *Statistical Inference I*. 2.2; 3 cr; annually. Prerequisite: 233.
- 235** *Statistical Inference II*. 3.0; 3 cr; annually. Prerequisite: 234.
- 236** *Elements of Sample Surveys*. 3.0; 3 cr. Prerequisite: 234.
- 237** *Statistical Design of Experiments*. 2.2; 3 cr. Prerequisite: 234.
- 238** *Probability Theory*. 3.0; 3 cr. Prerequisite: 233.

Graduate Program

For Mathematics majors, the following courses are required of all students: 227, 303, 314, 341. For Statistics majors, the following courses are required of all students: 227, 303, 331, 332, 333.

In addition to regular university scholarships, a limited number of departmental teaching and research assistantships is available to graduate students. A half-time teaching assistant is paid a stipend of LL. 360 per month plus free tuition. For more information write to the Chairman of the Department.

Mathematics

- 301** and **302** *Graduate Tutorial Courses*. 1-3 cr. Prerequisite: consent of instructor.
- 303** *Functions of a Real Variable*. 3.0; 3 cr; annually. Prerequisites: 214, 224 and 271, or consent of instructor.
- 304** *Functions of a Complex Variable*. 3.0; 3 cr. Prerequisites: 224, 227, or consent of instructor.
- 305** and **306** *Advanced Topics in Mathematics*. 3.0; 3 cr. The topics for each year are selected according to the needs of students.
- 314** *Algebraic Topology*. 3.0; 3 cr; annually. Prerequisite: 214.
- 341** *Rings and Modules*. 3.0; 3 cr; annually. Prerequisite: 241.
- 399** *M.A. or M.S. Thesis*.

Statistics

- 331** *Advanced Probability Theory*. 3.0; 3 cr. Prerequisites: 227 and 238.
- 332** *Advanced Mathematical Statistics*. 3.0; 3 cr. Prerequisites: 235 and 238.
- 333** *Multivariate Analysis*. 3.0; 3 cr. Prerequisites: 237 and 238.
- 335** and **336** *Advanced Topics in Statistics*. 3.0; 3 cr. The topics for each year are selected according to the needs of students.
- 399** *M.A. or M.S. Thesis*.

GRADUATE CENTER FOR MIDDLE EASTERN STUDIES

Director: Ghul, M.

Participating Departments: Arabic and Near Eastern Languages, Economics, Education, History and Archaeology, Philosophy, Psychology, Political Studies and

Public Administration, Religious Studies, and Sociology and Anthropology.

The Graduate Center for Middle Eastern Studies offers an interdisciplinary and interdepartmental graduate program providing opportunities for study and research leading to the degree of Master of Arts in the field of Middle Eastern Studies. The program draws on the resources of the various Departments in the Faculty of Arts and Sciences which together offer approximately one hundred semester courses pertaining to Middle Eastern Studies.

All students enrolled in the program are expected to take the core courses or their equivalent, and as many undergraduate or graduate courses as are deemed necessary by the Director to satisfy the requirements of the candidate's particular concentration.

Requirements for admission and details regarding the number of credit hours needed for fulfilling the requirements of the M.A. degree at the American University of Beirut are governed by the regulations of the chapter at the end of this catalogue entitled Graduate Study.

The core courses include a Middle Eastern language (Arabic, Turkish, Persian or any other language necessary for the particular needs of the student) and a course in each of the following areas: Islamic history and civilization, Ottoman history and institutions, nineteenth century modernization movements, and contemporary Middle Eastern society. A thesis showing competence in methodology and in the candidate's area of concentration is required. The written comprehensive examination covering the candidate's major field of study may be taken upon completing all but six of the total credits required for graduation.

DEPARTMENT OF PHILOSOPHY

Chairman : Makinson, D.

Professors : Blackstone, R.; Fakhry, M.; Johnstone, H. (Visiting); Malik, C.; Scott, R.

The Department of Philosophy offers programs leading to both the B.A. and the M.A. degrees.

Undergraduate Program

Students wishing to major in Philosophy must secure the approval of the Department. A student majoring in Philosophy must take at least 36 credit hours in Philosophy courses, apart from Philosophy 201. Of these, at least 18 credits should be from historical courses (numbered from 211 to 246) and should include Philosophy 211, 212 and 213. At least 18 credits should be from systematic courses (numbered from 251 upwards) and should include Philosophy 251, 252 and 253. A student majoring in Philosophy must also obtain a cumulative average of at least 70 in Cultural Studies 201 and 202, and a cumulative average of at least 70 in Cultural Studies 203 and 204.

Economics 230 and Political Studies and Public Administration 215, 216 and 217 may be counted towards the historical courses required for a major in Philosophy. Arabic 241 and 242, English 226 and European Literature 214 and History 286 may be counted towards the systematic courses required for a major in Philosophy.

Each student majoring in Philosophy is encouraged to choose a field of interest to him, from which to take as many as possible of his electives.

201 *Introduction to Philosophy*. 3.0; 3 cr; each semester. Intended primarily for Freshmen. The chief problems, issues and outlooks in philosophy, studied through selected writings of major philosophers, ancient and modern.

211 *History of Ancient and Medieval Philosophy.* 3.0; 3 cr; annually. Major philosophers and philosophical traditions in the ancient and medieval periods, with special emphasis on Plato, Aristotle, Augustine, Avicenna, Averroes and Aquinas.

212 *History of Modern Philosophy.* 3.0; 3 cr; annually. Major philosophers and philosophical traditions in the modern period, with special emphasis on Descartes and the rationalists, Locke and the empiricists, Kant and Hegel.

213 *Philosophy of Plato I.* 3.0; 3 cr. annually. The Dialogues of the early and middle periods of Plato, with attention to their relation to the philosophical, religious and socio-political background of Plato's time, and their relevance to philosophical problems in the world today.

214 *Philosophy of Plato II.* 3.0; 3 cr; annually. Plato's later Dialogues, with attention to their relation to the philosophical, religious and socio-political legacies of his predecessors, and their relevance to philosophical problems in the world today. Prerequisite: 213.

215 *Philosophy of Aristotle I.* 3.0; 3 cr; alternate years. Aristotle's view of reality as revealed in his logic, physics and metaphysics.

216 *Philosophy of Aristotle II.* 3.0; 3 cr; alternate years. Aristotle's theory of man as revealed in his ethics, psychology, politics and poetics.

217 *Medieval Christian Philosophy I.* 3.0; 3 cr; alternate years. Early medieval Western philosophy. The philosophy and theology of Augustine and his successors until 1200 A.D. Prerequisite: 211.

218 *Medieval Christian Philosophy II.* 3.0; 3 cr; alternate years. Late medieval Western philosophy, from 1200 A.D. to the time of the Reformation, with special emphasis on Aquinas, Duns Scotus and William of Ockham. Prerequisite: 211 or 215.

219 *Medieval Islamic Philosophy I.* 3.0; 3 cr; annually. Early medieval Islamic Philosophy, with special emphasis on Kalam, al-Mu'tazila, al-Kindi and al-Farabi. *In Arabic or English.* Prerequisite: 211.

220 *Medieval Islamic Philosophy II.* 3.0; 3 cr; annually. Late medieval Islamic philosophy, with special emphasis on Avicenna, al-Ghazzali, Averroes and Ibn Khaldun. *In Arabic or English.* Prerequisite: 211 or 215.

221 *Continental Rationalism.* 3.0; 3 cr; alternate years. Descartes, Spinoza and Leibniz.

222 *British Empiricism.* 3.0; 3 cr; alternate years. Locke, Berkeley and Hume.

223 *The Philosophy of Kant.* 3.0; 3 cr; alternate years. The critical philosophy of Kant, with special emphasis on the *Critique of Pure Reason.* Prerequisite: 212.

224 *The Philosophy of Hegel.* 3.0; 3 cr; alternate years. Hegel's philosophical system, with special consideration of his *Philosophy of Right* and his *Philosophy of History.*

225 *19th Century Philosophy.* 3.0; 3 cr; annually. Major trends in post-Hegelian philosophy: Marx, Kierkegaard, Nietzsche, Comte or others.

226 *20th Century Philosophy.* 3.0; 3 cr. annually. Major currents and developments in 20th century philosophy: James, Bergson, Maritain, Wittgenstein, Heidegger or others.

251 *Introduction to Logic.* 3.0; 3 cr; annually. The basic concepts and principles of valid and reliable inference. Elements of symbolic and syllogistic logic. Inductive inference, hypotheses, theories, definition.

252 *Philosophy of Science*. 3.0; 3 cr; alternate years. Foundations and structure of scientific theory. The role of observation, hypotheses and experiment. Content and implications of modern scientific inquiries. Prerequisite: consent of instructor.

253 *Ethics*. 3.0; 3 cr; alternate years. The nature of the right and the good, both personal and social, with special reference to major classical and contemporary thinkers.

254 *Philosophy of Religion*. 3.0; 3 cr; alternate years. Classic problems and periods in the Western traditions of religious thought, with special emphasis on the relation between philosophy and theology.

255 *Aesthetics*. 3.0; 3 cr. alternate years. Major types of recent and contemporary aesthetic theories.

256 *Philosophy of Art*. 3.0; 3 cr; alternate years. The nature and function of art in human culture. The diversity and the unity of the arts. The analysis of works of art. The values of works of art and the comparison of such values.

257 *Symbolic Logic*. 3.0; 3 cr; alternate years. Methods and theories of truth-functional and quantification logic. Prerequisite: 251.

291 and **292** *Undergraduate Seminar*. 3.0; 3 cr. Semester courses, given from time to time as need and opportunity arise. Prerequisite: consent of instructor.

Graduate Program

300 *Selected Problems in Metaphysics*. 3.0; 3 cr; alternate years. Prerequisites: 211, 212, 213, 214 or 215, 216, 221 or 223.

301 *Selected Problems in Epistemology*. 3.0; 3 cr; alternate years. Prerequisites: 211, 212, 222 and 223.

302 *Selected Problems in Theory of Value*. 3.0; 3 cr; alternate years. Prerequisites: 211, 212, 253, 254 or 255, or consent of instructor.

303 and **304** *Special Authors Seminars*. 3.0; 3 cr. Semester courses, given from time to time as need and opportunity arise. Prerequisite: consent of instructor.

305 *Classical Islamic Philosophy*. 3.0; 3 cr; alternate years. Special topics or authors. Prerequisites: 211, 212, 219 and 220.

306 *Recent Arab and Islamic Thought*. 3.0; 3 cr; alternate years. Special topics or authors. Prerequisites: 211, 212, 219 and 220.

307 *Contemporary Philosophy*. 3.0; 3 cr; alternate years. Special topics, authors or movements. Prerequisites: 211, 212, 225 and 226.

308 *Philosophy of Religion*. 3.0; 3 cr; alternate years. Selected problems or thinkers in the Western traditions of religion, with special emphasis on the use of philosophical assumptions and methodology in theology. Prerequisites: 211, 212 and 254.

309 and **310** *Special Topics Seminars*. 3.0; 3 cr. Semester courses, given from time to time as need and opportunity arise. Prerequisite: consent of instructor.

313 and **314** *Graduate Tutorial*. 3.0; 3 cr. Semester courses, given from time to time as need and opportunity arise. Prerequisite: consent of instructor.

315 *Selected Problems in Logic*. 3.0; 3 cr; alternate years. Prerequisite: consent of instructor.

316 *Selected Problems in the Philosophy of Science*. 3.0; 3 cr; alternate years. Prerequisite: consent of instructor.

399 *M.A. Thesis*.

PHYSICAL EDUCATION

Director of Athletics: Tarabulsi, A.

001 and **002** *Freshman Athletics*. 0.2; non-cr; annually. A theory and performance approach toward appreciation and knowledge of athletics, body building and various sports. The course includes supervised participation and instruction in football, basketball, body building, swimming and archery, and optional guidance in track and field events, tennis, volleyball, life saving and rowing, supplemented by lectures and audiovisual aids. All students are expected to learn to swim.

003 and **004** *Physical Education for Women*. 0.2; non-cr; annually. Instruction in health education, movement fundamentals and swimming, with a variety of electives open in sports and dance.

DEPARTMENT OF PHYSICS

Chairman : McClain, J.

Professors : Bitar, K.; Bruin, F. (Director of Observatory); Elliston, P.; Heineken, F.W.; Mavromatis, H.A.; Mourad, P.; Schilcher, K.; Singh, B.; Somoza, E.; Tang, I.; Watson, G.; Zahlan, A.

Lecturer : Zurayk, I.

The Department of Physics offers courses at the undergraduate level leading to a B.S. degree in physics or in an Interdepartmental Major combining courses in physics and mathematics or physics and chemistry. The Department also offers a number of courses for students majoring in other Departments.

Physics 101, 102, 211 and 212 are introductory courses for students of physics, chemistry or engineering. Physics 103, 204 and 205 are designed for students of medicine, nursing, pharmacy or biology.

Students who wish to follow a Physics major or an Interdepartmental Major must secure the approval of the advisor of Physics undergraduate students. They must obtain an average of 70 in the Physics courses normally taken in the Sophomore year; namely, 211, 212, 213, 214 and 215.

The programs for the *Physics Major*, the *Chemistry-Physics Interdepartmental Major* and the *Mathematics-Physics Interdepartmental Major* include the following Physics courses: 101, 102, 211, 212, 213, 214, 215, 217 and 219. In addition, students with a *Physics Major* must take Physics 218, 220, 221, 229 and four courses chosen from Physics 216, 222, 223, 224, 225, 226, 227, 228, 230, 231 and 232 as well as Mathematics 101, 102, 201, 202, 209, 221 and two courses chosen from Mathematics 211, 220, 222, 227 and 251.

Students taking a *Chemistry-Physics Interdepartmental Major* must take an additional six credits in Physics courses numbered 210 and above as well as Chemistry 101, 201, 202, 209, 211, 212, 218 and 219 and Mathematics 101, 102, 201, 202 and 221.

Students taking a *Mathematics-Physics Interdepartmental Major* must take an additional six credits in Physics courses numbered 210 and above as well as

Mathematics 101, 102, 201, 202, 205, 213, 241, 261 and six more credits in Mathematics courses numbered 200 and above.

The Department provides facilities for graduate work leading to the M.S. degree and to the Ph.D. degree. A grade of "Excellent" is required on the General Examination for permission to work for a Ph.D. degree.

- 101*** *Introductory Physics I.* 4.3; 5 cr; annually.
- 102*** *Introductory Physics II.* 4.3; 5 cr; annually. Prerequisite: 101.
- 103*** *General Physics I.* 3.3; 4 cr; annually.
- 204*** *General Physics II.* 3.3; 4 cr; annually. Prerequisites: 103; Mathematics 102 at least concurrently.
- 205** *General Physics III.* 3.3; 4 cr; annually. Prerequisite: 204.
- 210** *Classical Astronomy.* 2.2; 3 cr; annually. Prerequisite: 102 or Mathematics 102.
- 211** *Introductory Physics III.* 3.0; 3 cr; annually. Prerequisites: 102 and Mathematics 102.
- 212** *Introductory Physics IV.* 3.0; 3 cr; annually. Prerequisites: 102 and Mathematics 102.
- 213** *Electricity and Magnetism Laboratory.* 0.3; 1 cr; annually. Prerequisite: 211 at least concurrently.
- 214** *Modern Physics Laboratory.* 0.3; 1 cr; annually. Prerequisite: 212 at least concurrently.
- 215** *Thermal Physics.* 3.0; 3 cr; annually. Prerequisites: 102 and Mathematics 102.
- 216** *Electronics.* 3.3; 4 cr; annually. Prerequisites: 211 and 213.
- 217** *Mechanics.* 4.0; 4 cr; annually. Prerequisites: 102 and Mathematics 202.
- 218** *Quantum Mechanics.* 3.0; 3 cr; annually. Prerequisites: 212 and 217.
- 219** *Electromagnetic Theory I.* 3.0; 3 cr; annually. Prerequisites: 211 and Mathematics 202.
- 220** *Electromagnetic Theory II.* 3.0; 3 cr; annually. Prerequisite: 219.
- 221** *Advanced Laboratory I.* 1.6; 4 cr; annually. Prerequisites: 213 and 214.
- 222** *Advanced Laboratory II.* 1.6; 4 cr. Prerequisite: 221.
- 223** *Atomic and Molecular Physics.* 3.0; 3 cr. Prerequisite: 218.
- 224** *Mathematical Methods of Physics.* 3.0; 3 cr. Prerequisite: Mathematics 221 at least concurrently.
- 225** *Nuclear Physics.* 3.0; 3 cr. Prerequisite: 218.
- 226** *Solid State Physics.* 3.0; 3 cr. Prerequisite: 218.
- 227** *Relativity.* 3.0; 3 cr. Prerequisites: 217 and 220 at least concurrently.
- 228** *Optics.* 3.0; 3 cr. Prerequisite: 211.
- 229** *Current Topics in Physics.* 1.0; 1 cr. Prerequisite: senior standing.
- 230** *Astrophysics.* 2.2; 3 cr; annually. Prerequisite: 212.
- 231** and **232** *Selected Topics.* 3.0; 3 cr. May be repeated for credit.
- 291** and **292** *Senior Tutorial Course.* 1-3 cr. May be repeated for credit.

* Students with a Lebanese Baccalaureate Part II (Mathematics) or the equivalent are exempt from 101 and 102. Alternatively they may be exempted from 101 and 102 by scoring sufficiently highly in the Physics Sophomore Entrance Examination. Students with a Lebanese Baccalaureate Part II (Experimental Science or Mathematics) or the equivalent are exempt from 103. Alternatively they may be exempted from 103 by scoring sufficiently highly in the Physics 103 Exemption Examination. Not more than ten credits may be received for 101, 102, 103 and 204.

- 301** *Mathematical Methods of Physics*. 3.0 ; 3 cr.
303 *Thermodynamics and Statistical Mechanics*. 3.0 ; 3 cr ; annually.
304 *Solid State Physics*. 3.0 ; 3 cr. Prerequisite : 313.
307 *Classical Mechanics*. 3.0 ; 3 cr ; annually.
308 *Electrodynamics*. 3.0 ; 3 cr ; annually.
309 *Special Theory of Relativity*. 3.0 ; 3 cr. Prerequisites : 307 and 308.
310 *Radio and Microwave Spectroscopy*. 3.0 ; 3 cr.
313 *Quantum Mechanics I*. 3.0 ; 3 cr ; annually.
314 *Quantum Mechanics II*. 3.0 ; 3 cr. Prerequisite : 313.
316 *Atomic and Molecular Structure*. 3.0 ; 3 cr. Prerequisites : 303 and 313.
322 *Nuclear Physics*. 3.0 ; 3 cr. Prerequisite : 313.
325 *Elementary Particles*. 3.0 ; 3 cr. Prerequisite : 314.
331 and **332** *Selected Topics*. 3.0 ; 3 cr. May be repeated for credit.
391 and **392** *Graduate Tutorial*. 1-3 cr. May be repeated for credit. Required of all students working on Ph.D. thesis.
399 *M.S. Thesis*.
499 *Ph.D. Thesis*.

DEPARTMENT OF POLITICAL STUDIES AND PUBLIC ADMINISTRATION

Chairman : Nasr, N.

Professors : Batatu, J. ; Crow, R. ; Garrett, S. ; Gunderson, G. ; Hanania, F. ; Ibish, Y. ; Ibrahim, I. ; Iskandar, A. ; Khalidi, W. ; Letterie, J. ; Salem, E.

Lecturer : Bashir, I.

The Department of Political Studies and Public Administration offers courses leading to both the B.A. and the M.A. degrees in Political Studies (P.S.) or Public Administration (P.A.). Students wishing to major in either of these two fields must secure and maintain the approval of the Department and satisfy the conditions which are detailed below. In addition, the Department offers a non-degree Career Development Program.

For admission to the *Political Studies* Undergraduate Program a student must receive a grade of 75 or higher in PSPA 201 ; and an overall average of 70 in PSPA 201, Cultural Studies 201, 202 and Economics 203 or 211 and 212.

For admission to the *Public Administration* Undergraduate Program a student must receive an average of 75 or higher in PSPA 201 and 202 ; and an overall average of 70 in Cultural Studies 201, 202, and Economics 203 or 211 and 212.

Students majoring in *Political Studies* are required to complete 42 credits in the Department, which must include PSPA 201, 215, 216, 217, 225, 233, 250, 251, 252, 293 ; one senior seminar from PSPA 291, 294, 295, 296 ; one course from PSPA 203, 257, 258, 297 ; and two additional PSPA courses.

Political Studies majors are also required to take the following courses outside the Department, and are urged to choose electives from among the recommended courses listed below. Required courses : Economics 203 ; one of Psychology 201, 212, 220 ; and one of Sociology 201, 221, 223, 224, Anthropology 272. Recommended courses : the above plus Economics 222, 226, 232 ; History 238, 240, 245, 255, 256, 257, 259. Additional recommended electives may be taken in the areas of Arab History and Philosophy.

Students majoring in *Public Administration* are required to complete 42 credits in the Department which must include PSPA 201, 202, 203, 217, 257, 258, 273, 275, 277, 297, 298; one course from PSPA 250, 251, 252; one course from 253, 259, 294, 296; and one additional PSPA course.

Public Administration majors are also required to take the following courses outside the Department, and are urged to choose electives from among the recommended courses listed below. Required courses: one of Business Administration 210, 211, 212, 257; Economics 203 and 213 or Education 227 or Mathematics 207; one of Psychology 201, 212, 220; one of Sociology 201, 221, 223, 224, 246, Anthropology 272. Recommended courses: the above, plus Economics 222, 226, 232; History 238, 240, 245, 255, 256, 257, 259.

201 and/or consent of instructor is required for all Political Studies undergraduate courses except Senior seminars. 201, 203 and/or consent of instructor are required for all Public Administration undergraduate courses except Senior seminars. Senior standing or consent of instructor is a prerequisite for Senior seminars in Political Studies and Public Administration.

Political Studies

The Political Studies Program consists of a series of elementary and advanced courses designed to give the student a basic training in political theory, comparative government and international relations, and introduce him to the methods of political science. In addition, special attention is given to the study of political relations and institutions in the Arab Middle East.

- 201** *Introduction to Political Studies and Public Administration.* 3.0; 3 cr.
- 202** *Introduction to Political Institutions and Processes.* 3.0; 3 cr.
- 204** *Introduction to International Relations.* 3.0; 3 cr.
- 211** *History of Islamic Political Thought I.* 3.0; 3 cr.
- 212** *History of Islamic Political Thought II.* 3.0; 3 cr.
- 215** *History of Western Political Thought I.* 3.0; 3 cr.
- 216** *History of Western Political Thought II.* 3.0; 3 cr.
- 217** *History of Western Political Thought III.* 3.0; 3 cr.
- 223** *Jurisprudence.* 3.0; 3 cr.
- 225** *Public International Law.* 3.0; 3 cr.
- 233** *International Organization.* 3.0; 3 cr.
- 234** *Communism and the Arab World.* 3.0; 3 cr.
- 236** *Arab-Western Relations.* 3.0; 3 cr.
- 250** *Modern Governments: United Kingdom.* 3.0; 3 cr.
- 251** *Modern Governments: United States of America.* 3.0; 3 cr.
- 252** *Modern Governments: U.S.S.R.* 3.0; 3 cr.
- 253** *Modern Governments of the Middle East.* 3.0; 3 cr.
- 255** *Modern Islamic Political Institutions.* 3.0; 3 cr.
- 291** *Senior Seminar in Political Philosophy.* 3.0; 3 cr.
- 293** *Senior Seminar on Foreign Policy of the Great Powers.* 3.0; 3 cr.
- 295** *Foreign Policies of Non-Middle Eastern Developing Countries.* 3.0; 3 cr.
- 296** *Senior Seminar in Arab Political Processes.* 3.0; 3 cr.
- 299** *Senior Seminar in Research Methodology.* 3.0; 3 cr.

Public Administration

The Public Administration Program consists of a series of courses designed to introduce the student to the theory of public organization and techniques of administration in the public sector. Hence, the Program aims at preparing students for careers in the public sector, and developing in them the appreciation of the role of civil service in development.

- 201** *Introduction to Political Studies and Public Administration*. 3.0; 3 cr.
- 202** *Introduction to Political Institutions and Processes*. 3.0; 3 cr.
- 203** *Public Administration*. 3.0; 3 cr.
- 217** *History of Western Political Thought III*. 3.0; 3 cr.
- 257** *Comparative Public Administration (Western)*. 3.0; 3 cr.
- 258** *Comparative Public Administration (Middle Eastern)*. 3.0; 3 cr.
- 259** *Public Administration in Lebanon*. 3.0; 3 cr.
- 273** *Public Personnel Administration*. 3.0; 3 cr.
- 275** *Organization and Management*. 3.0; 3 cr.
- 277** *Public Budgeting*. 3.0; 3 cr.
- 297** *Senior Seminar in Administrative Theory*. 3.0; 3 cr.
- 298** *Senior Seminar in Public Bureaucracy*. 3.0; 3 cr.
- 299** *Senior Seminar in Research Methodology*. 3.0; 3 cr.

M.A. Programs

Graduate standing or consent of instructor is a prerequisite for all graduate courses in Political Studies and Public Administration.

Graduate students in *Political Studies* are required to take the following courses: PSPA 299, 301, 302 and 303, plus three additional courses in any one selected sub-discipline of political studies (Governmental Institutions and Processes, International Affairs, Political Philosophy) at any level.

Graduate students in *Public Administration* are required to take the following courses: PSPA 299, 357 and 397. Beyond this, students may choose to follow a general program ranging over the several fields of Public Administration or to choose one of three concentrations (Fiscal Management, Personnel Administration, Organization and Management, Administrative Theory) in which they will take at least three additional courses.

The Graduate Program in Political Studies leads to the M.A. degree and is meant to provide an advanced survey in depth of the methodological and theoretical frameworks of analysis and approaches to the study of selected areas of specialization in political studies. At this level of his training the student will be extensively exposed to the literature in political studies in general and his area of specialization in particular.

- 299** *Senior Seminar in Research Methodology*. 3.0; 3 cr.
- 301** *Theories of Political Philosophy*. 3.0; 3 cr.
- 302** *Theories of International Relations*. 3.0; 3 cr.
- 303** *Theories of the Political Systems*. 3.0; 3 cr.
- 316** *International Politics of the Arab World*. 3.0; 3 cr.
- 317** *Modern European Political Philosophy*. 3.0; 3 cr.
- 318** *Modern Islamic and Arab Political Philosophy*. 3.0; 3 cr.

- 319** *Graduate Seminar in Political Philosophy.* 3.0; 3 cr.
- 326** *International Law and Diplomacy.* 3.0; 3 cr.
- 331** *Problems of the Cold War.* 3.0; 3 cr.
- 333** *Graduate Seminar in International and Regional Organization.* 3.0; 3 cr.
- 350** *Graduate Seminar in Governmental Institutions and Processes.* 3.0; 3 cr.
- 353** *Graduate Seminar in the Modern Governments of the Middle East.* 3.0; 3 cr.
- 354** *Modern Governments of Non-Middle Eastern Developing Countries.* 3.0; 3 cr.
- 371** *Institutional Foundations of Middle Eastern Society.* 3.0; 3 cr.
- 372** *Graduate Tutorial in Political Studies and Public Administration.* 3.0; 3 cr.
- 373** *Politics and Administration.* 3.0; 3 cr.
- 378** *Political and Administrative Development.* 3.0; 3 cr.
- 379** *Modernization and Political Change in the Middle East in the 19th and 20th Centuries.* 3.0; 3 cr.
- 382** *Political Themes in Contemporary Arab Writing.* 3.0; 3 cr.
- 392** *Graduate Seminar in Legal Issues.* 3.0; 3 cr.
- 394** *Graduate Seminar in International Relations.* 3.0; 3 cr.
- 399** *M.A. Thesis.*

The Graduate Program in Public Administration leads to the M.A. degree and is designed to provide a general focus ranging over the sub-fields of public administration and to prepare graduate students for professional careers in the public service. It allows for specialization in the areas of Fiscal Management, Personnel Administration, Organization and Management, and Development Administration.

- 299** *Senior Seminar in Research Methodology.* 3.0; 3 cr.
- 357** *Comparative Public Administration.* 3.0; 3 cr.
- 358** *Local Government.* 3.0; 3 cr.
- 370** *Problems in Public Personnel Administration.* 3.0; 3 cr.
- 371** *Bureaucracy in Islam.* 3.0; 3 cr.
- 372** *Graduate Tutorial in Political Studies and Public Administration.* 3.0; 3 cr.
- 373** *Politics and Administration.* 3.0; 3 cr; alternate years.
- 374** *Graduate Seminar in Public Administration.* 3.0; 3 cr.
- 375** *Administrative Analysis.* 3.0; 3 cr.
- 377** *Problems in Financial Administration.* 3.0; 3 cr.
- 378** *Political and Administrative Development.* 3.0; 3 cr.
- 380** *Governmental Planning, Budgeting and Control.* 3.0; 3 cr.
- 381** *Case Problems in Public Administration.* 3.0; 3 cr; alternate years.
- 397** *Graduate Seminar in Administrative Theory.* 3.0; 3 cr.
- 399** *M.A. Thesis.*

Career Development Program

In addition to its B.A. and M.A. Programs the Department maintains a non-degree Career Development Program which aims at providing a combination of "specialist-generalist" training courses for middle management civil servants. This approach is designed to improve the functional skills of officials in their respective area of administrative responsibility, and to broaden their knowledge and understanding of administration as an agent of development and modernization.

The training program of the Career Development Program consists of two parts.

The first part is composed of four three-credit hour CDP Seminar-workshops; two offered in the Fall semester and two in the Spring.

CDP **301** *Administration and Public Policy.*

CDP **302** *Nature and Concept of Development.*

CDP **303** *Planning, Budgeting and Control.*

CDP **304** *Administrative Reform and Change.*

The second part is composed of four selected three-credit hour courses regularly offered by the University.

Admission of candidates to the Career Development Program is determined by the Department of Political Studies and Public Administration. Eligibility for admission to the Program is based on :

(a) Completion of at least two years of college or university education or its equivalent;

(b) Working experience of a minimum of five years in an administrative environment;

(c) Classification in the middle management group and preferably not exceeding 35 years of age;

(d) Passing the University English Entrance Examination for the Freshman Class.

DEPARTMENT OF PSYCHOLOGY

Chairman : Melikian, L.

Professors : Chimienti, J. ; Diab, L. ; Gorry, T. ; Prothro, E. ; Saegert, J.

Lecturer : Yaktine, U.

Instructor : Alamuddin, N.

Undergraduate Program

Students desiring to major in the Department of Psychology must secure the approval of the Department and must have received a grade of 70 or more in 201, and passed 210. Requirements for a major include 201, 212, 217, 218, 219, 220, 221, 222 and 292. In addition to these required courses, the student must elect at least 6 credits from the following: 214, 215 (not open to students who have taken 219), 216, 225, 227. 203 does not count among the 33 credits needed for majors.

201 *General Psychology.* 3.0; 3 cr; annually. Principles and findings of modern psychology with attention to their experimental foundations.

203 *Psychology of Adjustment.* 3.0; 3 cr; alternate years. Human motivation, conflict and adjustment. Prerequisite: 201.

210 *Statistics for Psychological Research.* 3.0; 2 cr; annually. Introduction to descriptive and inferential statistics, with emphasis on application of techniques.

212 *Social Psychology.* 3.0; 3 cr; annually. The interaction between individuals and the group. Data from laboratory and field experiments are used. Prerequisite: 201.

214 *Personality and Culture.* 3.0; 3 cr. alternate years. Modal personality and the

relation of such personalities to socio-cultural systems, with special attention to the Middle East. Prerequisite : 212 or 220.

215 *Introductory Experimental Psychology.* 2.2; 3 cr; annually. Introduction to experimental methods, with laboratory experiments in each area. Prerequisite : 201. Not open to students who have taken 219.

216 *Abnormal Psychology.* 3.0; 3 cr; annually. Examination of normal and abnormal reaction patterns, with detailed study of such behavior disorders as psychoneuroses, psychoses and mental deficiency. Prerequisite : 220.

217 *Psychology of Perception.* 3.0; 3 cr; annually. Psychophysics and the experimental study of perceptual processes. Prerequisite : 201.

218 *Psychology of Learning.* 3.0; 3 cr; annually. The learning process, including verbal learning and problem-solving. Prerequisite : 201.

219 *Experimental Method.* 2.3; 3 cr; annually. Design and conduct of psychological experiments, and analysis and interpretation of their results. Prerequisites : 210, 217 and 218.

220 *Psychology of Personality.* 3.0; 3 cr; annually. Examination of methods of measuring personality, theories of personality, biological and sociological factors which influence personality. Prerequisite : 201.

221 *Physiological Psychology.* 3.0; 3 cr; annually. The substrates of behavior, including the nervous and endocrine systems. Prerequisite : 218.

222 *History and Systems of Psychology.* 3.0; 3 cr; annually. Historical development of scientific conceptions of human behavior; examination of contemporary psychological systems. Prerequisites : 217 and 218.

225 *Psychology of Development.* 3.0; 3 cr; annually. Psychological development from before birth to adulthood. Prerequisite : 201.

227 *Psychological Measurement and Scaling.* 3.0; 3 cr; alternate years. Principles and methods of measurement and scaling in psychology. Prerequisites : 201 and 210.

291 *Senior Tutorial.* 3.0; 3 cr; annually. Prerequisite : 219.

292 *Undergraduate Seminar in General Psychology.* 3.0; 3 cr; annually. Review of significant research in major areas in psychology. Prerequisite : consent of instructor.

Graduate Program

The Department offers an M.A. program in Psychology. The Department requires all graduate students to take 301 and 302 and a minimum of 12 of the remaining course credits from graduate courses. A minimum of 24 credits plus 6 credits for a thesis is required for graduation. The Department may require more credits in case of deficiencies in the student's undergraduate record.

301 *Research Design.* 3.0; 3 cr; annually. An advanced course in all aspects of the design of psychological research, including methods of statistical analysis.

302 *Contemporary Systems of Psychology.* 3.0; 3 cr; annually. A critical appraisal of contemporary systems of psychology. Theoretical and empirical work in learning will be viewed as representing a central contribution.

304 *Advanced Social Psychology*. 3.0; 3 cr; alternate years. A critical survey of social-psychological theory and research, with special emphasis on attitude measurement, attitude change, intragroup and intergroup relations, social perception, and group conformity processes. Prerequisite: 212.

305 *Clinical Assessment*. 3.0; 3 cr; annually. History and method of assessment, and specific diagnostic techniques. Prerequisite: 216.

306 *Counseling and Psychotherapy*. 3.0; 3 cr; alternate years. Theories and practices of psychological counseling. Prerequisite: 305.

307 *Seminar in Social Psychology*. 3.0; 3 cr; annually. Prerequisite: consent of instructor.

308 *Seminar in Clinical Psychology*. 3.0; 3 cr; alternate years. Prerequisite: consent of instructor.

309 and **310** *Seminar in General Psychology*. 2.0; 3 cr; annually. Prerequisite: consent of instructor. Topic varies from semester to semester.

399 *M.A. Thesis*.

Courses offered by other Departments may, with the approval of the chairman of the Department, be applied toward a concentration in Psychology.

DEPARTMENT OF RELIGIOUS STUDIES

Chairman : Ward, W.

Professor : Jafri, S.

Lecturer : Montégu, J.

Requirements for a major in the Department of Religious Studies are: (1) a minimum of 30 hours in the Department including 210 or 211, 212, 213, 215 and 220; (2) a reading knowledge of one of the languages of the texts to be studied. The area of concentration and specific courses beyond those required will be selected in consultation with an advisor in the Department. The Department may require 12 hours of work in allied Departments (History and Archaeology, Philosophy, Psychology, Sociology and Anthropology) or specific courses from any Department bearing on the student's concentration.

210 and **211** *Ancient Near Eastern Religions*. 3.0; 3 cr. annually. The religions of ancient Mesopotamia and Egypt (210), and of ancient Canaan and the Hebrews (211).

212 *Graeco-Roman and Hellenistic Religions*. 3.0; 3 cr. annually.

213 *Judaism*. 3.0; 3 cr; annually. The foundation of Judaism; the religion of the Diaspora; literature, sects and schools of thought in the age of the Tannaim.

214 *Jesus of Nazareth*. 3.0; 3 cr; alternate years. The sources, records and interpretations of the role of Jesus as the founder of Christianity.

215 *History of Early Christianity*. 3.0; 3 cr; annually. Origins and development of Christianity, including its literatures and institutions, down to the Council of Nicea.

216 *Eastern Christendom*. 3.0; 3 cr; alternate years. The Eastern Churches from the 7th century to the present, their relation to Islam, the Byzantine and Turkish Empires, and their present ecumenical relations.

217 *Studies in New Testament Writings*. 3.0; 3 cr; alternate years. The text,

content, historical circumstances of the New Testament and the various methods of its interpretation.

220 *The Rise and Development of Islam I.* 3.0; 3 cr; annually. The rise and early development of Islam, its beliefs and religious institutions.

221 *The Rise and Development of Islam II.* 3.0; 3 cr; annually. Though independent, this course may also be considered a continuation of 220. It covers the territorial, dynastic and internal expansion and development of Islam from the Caliphate of the Rashidun down to the Ottomans.

224 *History of Old Testament Times.* 3.0; 3 cr; alternate years. The Old Testament against its general Near Eastern background.

225 *History of Religion Seminar.* 3.0; 3 cr; annually. Special problems in the general field of religious studies. May be repeated for credit.

226 *Living Religions of the East.* 3.0; 3 cr; alternate years. Introduction to the historic religions of the Far East, which remain the predominant religions of India, China and Japan.

229 *Undergraduate Tutorial in Religious Studies.* 3.0; 3 cr; offered on demand. May be repeated for credit.

231 *Islamic Religious Thought.* 3.0; 3 cr; annually. The origin, growth and progress in intellectual and mystical construction of religious thought, dialectical theology and development of dogma in Islam, with special attention to the Mu'tazila, Asharism, Maturidism, Sufism, and the role played by al-Ghazzali in the consolidation of the Sunnite tenets.

232 *Islam in the Modern Period.* 3.0; 3 cr; alternate years. The development of Islamic intellectual and religious movements since the 19th century with a background survey of the interregnum between the end of the classical and the beginning of the modern periods, with special attention to the Islamic reform movements, the West and the Muslim countries, the revolt of Islam and the movements of Islam outside the Arab world.

233 *Foundations of Christian Thought.* 3.0; 3 cr; alternate years. A study of the major influences on the writers of the New Testament, Apostolic Fathers and early writers to Irenaeus. Prerequisite: 217 or its equivalent.

234 *The Eastern Fathers.* 3.0; 3 cr; alternate years. The development of the thought of the Fathers of the Eastern church from Origen to John of Damascus, including a study of the development of the schools of Alexandria and Antioch and the major religious issues of the "Golden Age" of the Eastern Fathers.

235 *The Reformation and Counter-Reformation in Sixteenth-Century Europe.* 3.0; 3 cr; alternate years.

238 *Contemporary Religious Issues.* 3.0; 3 cr; alternate years. Current crises, debates, issues and proposed solutions in today's living religions. May be repeated for credit.

239 *The Civilization of Islam.* 3.0; 3 cr; alternate years. The cultural achievements in the civilization of Islam, in different regions and epochs, from the 7th to the 12th centuries.

240 *History and Theory of Islamic Law.* 3.0; 3 cr; alternate years. Origin and development of Islamic law, and the rise and function of the legal schools—the Maliki, the Hanafi, the Shafi'i, the Hanbali and the Shi'i.

242 Seminar in Religious Texts. 3.0; 3 cr; offered on demand. Introduction, language and interpretation of the sacred writings of a selected religion or religious subject. May be repeated for credit.

243 Old Testament Prophets. 3.0; 3 cr; alternate years. Selected material from the books of the Prophets, studied in the context of the historical background and issues of their day.

244 Seminar on the Source of the Life of the Prophet Muhammad. 3.0; 3 cr; alternate years. A critical study of the early sources of the life and career of the Prophet Muhammad. The origin and development of the biographical tradition (Sira) and the literature associated with it, with special critical reference to the earliest extant biography of Ishaq.

245 Seminar in the Study of the Qur'an. 3.0; 3 cr; alternate years. Textual history of the Qur'an; analytical study of syntax, structure and style; survey of the origin and growth of the commentaries (Tafsir) and their methods. Attention is given to the different interpretations and approaches both in classical and modern times.

246 and 247 Biblical Hebrew. 3.0; 3 cr; alternate years.

Graduate Program

The Department of Religious Studies offers graduate work in several areas of religious studies including Ancient, Classical, Christian and Islamic religions. Each student accepted by the Department will have a program worked out in his specialization. Within the Department he will study his field by means of graduate seminars and tutorials, the subject matter of which will vary from year to year.

301 Seminar in Materials and Methods in Religious Studies. 3.0; 3 cr.

302 Advanced Reading in Original Texts. 3.0; 3 cr.

303 and 304 Seminar in Religious Studies. 3.0; 3 cr.

305 and 306 Tutorial in Religious Studies. 3.0; 3 cr.

399 M.A. Thesis.

DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY

Chairman : Khalaf, S.

Professors : Barakat, H. ; Basson, Pr. ; Khuri, F. ; Obermeyer, G.

Lecturer : Dodd, P.

The Department of Sociology and Anthropology offers three options leading to the B.A. degree: a joint major in Sociology and Anthropology, a major in Anthropology and a major in Sociology. Admission requires approval of the Department and a grade of 70 or more in Sociology 201 or in Anthropology 210 and in English 201. The Department also offers programs leading to the M.A. in Anthropology and the M.A. in Sociology.

The requirements for the B.A. programs are as follows :

Joint Major in Sociology and Anthropology. Sociology 201, 233; Anthropology 210, 270; and 24 additional credit hours in the Department.

Major in Anthropology. Anthropology 210, 270; Archaeology 213; Biology 210; English 227 (Linguistics); and 24 additional credit hours distributed between topical and area courses in anthropology.

Major in Sociology. Sociology 201, 233, 262, 264; an introductory statistics course selected from the following: Economics 213, Education, 227, Mathematics 207; and 21 additional credit hours in sociology.

The Department's *Manual for Graduate Students* contains information on its graduate programs additional to that contained elsewhere in this catalogue.

Candidates for the *M.A. in Anthropology* are required to take Anthropology 382.

Candidates for the *M.A. in Sociology* are required to take Sociology 306 and Sociology 307. By appropriate reading, courses, and tutorials the student is expected to develop a knowledge of two areas of concentration. The following list of areas of concentration is suggestive but *not* exhaustive: Demography and urban sociology, Social disorganization and social problems, Stratification, Political sociology, the Family, Social psychology, Middle Eastern society, Modernization and societal development, Industrial sociology, Ethnic and religious groups. Normally, the thesis will be written on a topic in one of the two selected areas of concentration.

Sociology

201 *Introduction to Sociology.* 3.0; 3 cr; each semester.

212 *Urbanization.* 3.0; 3 cr; alternate years. Prerequisite: 201 or consent of instructor.

213 *Demography.* 3.0; 3 cr; alternate years. Prerequisite: 201 or consent of instructor. An introductory statistics course is recommended.

216 *Sociology of Health and Medical Care.* 3.0; 3 cr; alternate years. Prerequisite: 201.

221 *Public Opinion.* 3.0; 3 cr; alternate years. Prerequisite: 201 or Anthropology 210.

223 *Political Sociology.* 3.0; 3 cr; alternate years. Prerequisite: 201 or consent of instructor.

224 *Social Interaction.* 3.0; 3 cr; alternate years.

231 *The Family.* 3.0; 3 cr; alternate years. Prerequisite: 201 or Anthropology 210.

233 *Contemporary Arab Society.* 3.0; 3 cr; annually. Prerequisite: junior or senior standing, and consent of instructor.

240 *Social Stratification.* 3.0; 3 cr; alternate years. Prerequisite: 201 or Anthropology 210.

246 *Industrial Sociology.* 3.0; 3 cr; alternate years. Prerequisite: 6 credits in Sociology/Anthropology, or consent of instructor.

250 *Social Disorganization and Deviant Behavior.* 3.0; 3 cr; alternate years. Prerequisite: 6 credits in social sciences, or consent of instructor.

261 *Development of Social Thought.* 3.0; 3 cr; annually. Prerequisite: 6 credits in Sociology/Anthropology, or consent of instructor.

262 *Contemporary Sociological Theory.* 3.0; 3 cr; annually. Prerequisite: 12 credits in Sociology/Anthropology, or consent of instructor.

264 *Methods of Social Research.* 3.4; 5 cr; annually. Laboratory: engagement in actual research projects, application of techniques of data collection and analysis and interpretation of research findings. Prerequisite: 201.

299 *Senior Independent Study.* 3-6 cr. Prerequisite: senior standing, eligibility for graduation with distinction.

301 and **302** *Graduate Seminar.* 3-6 cr; annually.

- 303 and 304** *Graduate Tutorial*. 3 cr.
- 306** *Seminar in Social Research Methods*. 3.0; 3 cr; annually.
- 307** *Advanced Sociological Theory*. 3.0; 3 cr; annually.
- 308** *Modernization in the Arab World*. 3.0; 3 cr; alternate years.
- 309** *Social Institutions of Middle Eastern Societies*. 3.0; 3 cr; alternate years.
- 320** *Special Topics*. 3.0; 3 cr; Graduate courses or seminars will be offered on the following topics, whenever possible:
- Deviance and Disorganization
 - Family, Youth and Socialization
 - Human Ecology and Demography
 - Industrialization and Labor
 - Political Sociology
 - Sociology of Education
 - Sociology of Health and Medical Care
 - Sociology of Literature
 - Structural Aspects of Development
 - Third World Revolutionary Movements
 - Urbanization
- 399** *M.A. Thesis*.

Anthropology

- 210** *Introduction to Anthropology*. 3.0; 3 cr; each semester.
- 270** *World Ethnography*. 3.0; 3 cr; annually. Prerequisite: 210 or Sociology 201.
- 271** *Social Anthropology*. 3.0; 3 cr; alternate years. Prerequisite: 210 or 270, or consent of instructor.
- 272** *Cultural Change*. 3.0; 3 cr; alternate years. Prerequisite: 210 or 270, or consent of instructor.
- 273** *Ethnic Groups in Plural Societies*. 3.0; 3 cr. Prerequisite: 210 or 270, or consent of instructor.
- 274** *Peoples of the Middle East*. 3.0; 3 cr; annually. Prerequisite: 210 or Sociology 201, or consent of instructor.
- 275** *Primitive Religion and Magic*. 3.0; 3 cr; alternate years. Prerequisite: 210 or 270, or consent of instructor.
- 276** *Peasant Society*. 3.0; 3 cr. Prerequisite: 210 or 270, or consent of instructor.
- 280** *Circum-Mediterranean Cultures*. 3.0; 3 cr. Prerequisite: 210 or Sociology 201, or consent of instructor.
- 281** *Political Anthropology*. 3.0; 3 cr; alternate years. Prerequisites: 210 or 270, and an area course, or consent of instructor.
- 282** *Economic Anthropology*. 3.0; 3 cr; alternate years. Prerequisites: 210 or 270, and an area course, or consent of instructor.
- 293** *Peoples of Africa*. 3.0; 3 cr; alternate years. Prerequisite: 210 or Sociology 210, or consent of instructor.
- 299** *Senior Independent Study*. 3-6 cr. Prerequisite: senior standing, eligibility for graduation with distinction.
- 370** *Graduate Survey of Anthropology*. 3.0; 3 cr; annually as required.

371 and 372 *Seminars in Problems in Middle Eastern Ethnology*. 3.0; 3 cr; annually. Prerequisite: graduate standing, or consent of instructor.

373 and 374 *Graduate Tutorials*. 3.0; 3 cr; alternate years. Prerequisite: graduate standing, or consent of instructor.

375 and 376 *Seminars in General Ethnology*. 3.0; 3 cr; alternate years. Prerequisite: graduate or special student standing, or consent of instructor.

377 *Methods of Research in Anthropology*. 3.0; 3 cr; alternate years. Prerequisite: completion of one year of graduate work in Anthropology or of a combined program in Anthropology and Sociology.

382 *History of Anthropological Theory*. 3.0; 3 cr; alternate years. Prerequisite: graduate standing, or consent of instructor.

390 *Special Topics*. 3-6 cr.

399 *M.A. Thesis*.

INSTITUTES, CENTERS AND SPECIAL PROGRAMS

Center for Behavioral Research

Director : Prothro, E.

Associate Directors: Khalaf, S.; Melikian, L.

The Center, which is jointly sponsored by the Department of Psychology and the Department of Sociology and Anthropology, carries out interdisciplinary research in human behavior with particular attention to the Middle East.

The Center also channels applications for grants from outside agencies, and sponsors projects by Faculty members of the two Departments.

Center for English Language Research and Teaching

Director : Bratton, N.

Professors : Cook, D.; Dobbyn, M.; Praninskas, J.; Yorkey, R.

Instructors : Aronson, D.

The Center has five main functions:

(1) In cooperation with the Department of English and the Department of Education, it sponsors a Teaching Diploma and an M.A. degree program in the Teaching of English as a Foreign Language (TEFL).

(2) The Center publishes *TEFL*, a quarterly journal on English language teaching which is distributed free of charge to about 3500 teachers in 32 countries.

(3) The Center maintains a Library and Materials Center which contains an up-to-date collection of books, journals, textbooks, reports and visual aids which are available for inspection by visiting teachers and administrators.

(4) The Center engages in research in TEFL and, under contract, produces curricula and materials for English teaching and teacher training.

(5) The Center acts as a resource center for the area, offering consultation services in a wide variety of areas connected with English language teaching, e.g. setting up English language programs, curriculum design, teacher training language laboratories. Upon request, specialized English programs (e.g. English for bankers, nurses, administrators, industrial trainees, etc.), workshops and in-service seminars are arranged either on campus or in the host country.

M.A. (TEFL) Program

This program is designed for non-AUB graduates. It provides students with the professional knowledge and practical skills contained in the Diploma program but goes beyond classroom teaching to consider the needs of future supervisors, researchers and materials writers.

Admission requirements are :

- a) A B.A. degree in English Language (applicants without this degree will be required to take additional courses) ;
- (b) A score of at least 600 on the AUB English Entrance Examination or its equivalent on the Test of English as a Foreign Language (TOEFL) ;
- c) At least one year of unsupervised English teaching.

The program consists of 36 credits plus a project and normally takes two years to complete. Ten of the twelve courses are "required" ; the remaining two are "electives".

a) Required courses :

Education (q.v.)

Education 215, 216, 323 ;

English (q.v.)

English 228, 231, 294 ;

TEFL

Education 243, 244 and two of the following :

Education 324, 325, 328.

b) Elective courses :

Education (q.v.)

Any Education course ;

English (q.v.)

English 227, 229, 341, 342, 344 ;

TEFL

Education 342, 325, 328 (whichever was not taken as a requirement).

Economic Research Institute

Director: Badre, A. (Visiting).

The Economic Research Institute, which is affiliated to the Department of Economics, was established in 1953 to study problems of the rapidly developing economies of the various countries of the Middle East. The Department of Economics is responsible for teaching, and the Economic Research Institute for research, in the field of economics.

The specific aims of the Institute are :

- (1) To provide time and facilities for basic (academic) research.
- (2) To conduct contract research geared to the socio-economic development of

the Arab world, at the request and with the support of governments and semi-public bodies.

- (3) To build up, systematize and publish a body of data on the region.
- (4) To provide training in research for outstanding graduate students.
- (5) To promote and publish economic writing by Institute members and outside economists.

Science and Mathematics Education Center

Director : Haddad, W.

Professor : Namek, Y.

Lecturer : Za'rour, G.

The Science and Mathematics Education Center, which is a part of the Department of Education, has the following four main functions :

- (1) The training of prospective science and mathematics teachers on both the B.A. and M.A. levels in conjunction with the science and mathematics departments.
- (2) The training of in-service teachers by means of summer institutes, conferences and workshops.
- (3) A consultation service to schools and governments regarding textbooks, curriculum planning, equipment, laboratories and methods of evaluation.
- (4) Research and development in the fields of science and mathematics education.

University Orientation Program

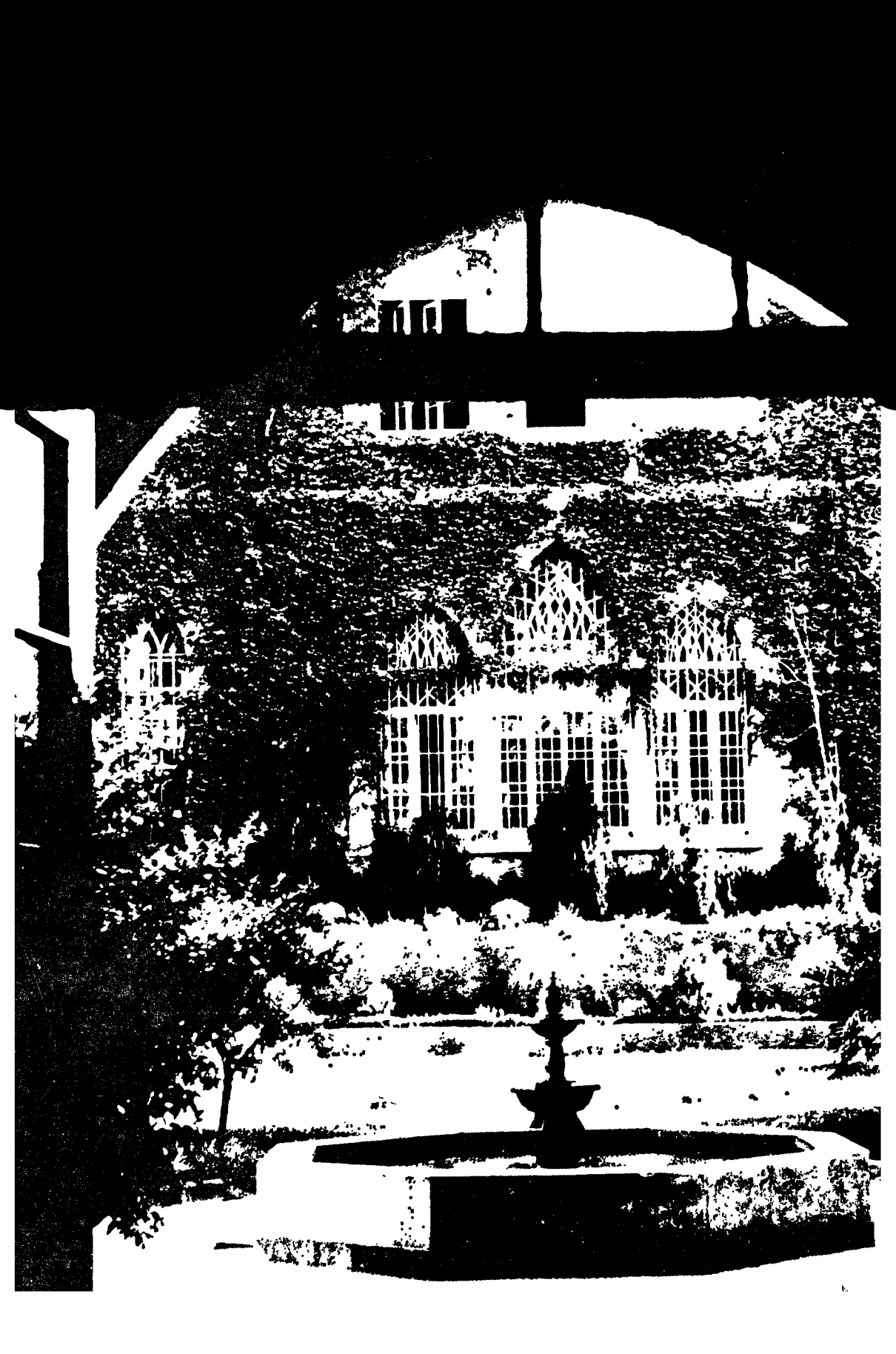
Director : Praninskas, J.

Lecturer : Milecki, M.

Instructors : Abboud, S. ; Andrews, J. ; Bender, M. ; Clark, J. ; Darwish, O. ; Sims, O. ; Woosnam-Mills, M. ; Yaqub, D.

The University Orientation Program is a special service program instituted by the Faculty of Arts and Sciences to meet the needs of students who qualify for university entrance except for a deficiency in English language skills. It is primarily for scholarship students whose fees are paid through the Bursary Students' Office, and enrollment is limited. When the quota is not filled by scholarship students, private applicants are selected. A minimum score in the English Entrance Examination is required.

Classes meet twenty-five hours per week for one or two semesters. The courses include intensive training in grammar, vocabulary, reading, and writing. Language laboratory facilities are utilized for development of oral fluency and aural comprehension. Evening lectures and social activities are arranged to afford students an opportunity to practice English skills in an other-than-classroom environment.



**Faculties of
MEDICAL SCIENCES**



116 - FACULTIES OF MEDICAL SCIENCES

The Faculties of Medical Sciences constitute one of the four major academic divisions of the University and include the following four Schools:

School of Medicine, established in 1867

School of Pharmacy, established in 1871

School of Nursing, established in 1905

School of Public Health, established in 1954

In addition to the Schools, two other administrative units are included: the University Hospital, established in 1905, and the University Health Service.

Each School or unit has a Director who is responsible to the Dean of the Faculties of Medical Sciences.

SCHOOL OF MEDICINE

SCHOOL OF MEDICINE

Faculty List 1971-1972

Craig S. Lichtenwalner — M.D., M.P.H.; *Professor of Public Health Practice, Dean of the Faculties of Medical Sciences.*

Raif E. Nassif — M.D., M.P.H.; *Professor of Clinical Pathology, Director of the School of Medicine, Associate Dean of the Faculties of Medical Sciences.*

Adel K. Afifi — M.D., M.S.; *Associate Professor of Human Morphology, Assistant Director of the School of Medicine.*

Khalil Abu Feisal — M.D.; *Associate Professor of Internal Medicine, Audio-visual Coordinator.*

Farid Amin Fuleihan — B.B.A.; *Registrar.*

PROFESSORS EMERITI

Ghantus, Musa, K. — M.D., American University of Beirut; *Human Morphology.*

Kerr, Stanley E. — Ph.D., University of Pennsylvania; (*Emeritus Distinguished Professor*) *Biochemistry.*

Sahyoun, Philip — M.D., American University of Beirut; *Pathology.*

Shanklin, William M. — Ph.D., Yale University; D.Sc., Bridgewater College; *Histology and Neuroanatomy.*

Yenikomishian, Hovsep A. — M.D., American University of Beirut; *Internal Medicine.*

PROFESSORS

* Bickers, William M. — M.D., Medical College of Virginia; *Obstetrics and Gynecology.*

* Diab, Alfred E. — M.D., American University of Beirut; *Ophthalmology and Otorhinolaryngology.*

Egbert, Lawrence — M.D., University of Maryland; *Anesthesiology.*

* Fawaz, George A. — M.S., American University of Beirut; Ph.D., University of Graz; M.D., University of Heidelberg; *Pharmacology and Therapeutics.*

* Garabedian, Garabed A. — M.S., American University of Beirut; Ph.D., University of Minnesota; *Bacteriology and Virology.*

Haddad, Chafic N. — M.D., American University of Beirut; D.T.M., University of Liverpool; *Internal Medicine (Endocrinology) (Clinical Professor).*

* Kirkwood, Samuel B. — M.D., Harvard Medical School; D.Sc. (Hon.), Macalester College; LL.D., Amherst College; *Obstetrics.*

Manougian, Antranig S. — M.D., American University of Beirut; D.P.M., University of Edinburgh; *Psychiatry (Clinical Professor).*

* On Tenure Appointment.

- McLaren, Donald S. — M.B., Ch.B., M.D., University of Edinburgh; D.T.M. & H., Ph.D., University of London; *Clinical Nutrition*.
- Nachman, Henry Sami — M.D., American University of Beirut; *Pediatrics (Clinical Professor)*.
- * Nassif, Raif E. — M.D., American University of Beirut; M.P.H., Yale University; *Clinical Pathology*.
- Noltenius, Harald — M.D., University of Freiburg; *Pathology*.
- * Sabra, Fuad A. — M.D., American University of Beirut; *Internal Medicine (Neurology)*.
- Shahid, Munib J. — M.D., American University of Beirut; *Internal Medicine (Hematology) (Clinical Professor)*.
- * Shwayri, Edmond I. — M.D., American University of Beirut; *Internal Medicine (Nephrology)*.
- * Tabbara, Riad A. — M.D., American University of Beirut; *Internal Medicine (Cardiology)*.

ASSOCIATE PROFESSORS

- * Abu 'Feisal, Khalil M. ++ — M.D., American University of Beirut; *Internal Medicine (Respiratory)*.
- * Abu Haydar, Najib I. + — M.D., American University of Beirut; *Internal Medicine (Endocrinology)*.
- * Afifi, Adel K. — M.D., American University of Beirut; M.S., University of Iowa; *Human Morphology*.
- Antypas, Philip G. — M.D., American University of Beirut; *Surgery (Plastic) (Associate Clinical Professor)*.
- * Azar, Joseph E. — M.D., American University of Beirut; D.T.M. & H., University of London; *Internal Medicine (Infectious Diseases)*.
- Azoury, Bahij S. — M.D., American University of Beirut; D.M.Sc., Columbia University; *Surgery (Urology) (Associate Clinical Professor)*.
- Azoury, Ramez S. — M.D., American University of Beirut; *Obstetrics and Gynecology*.
- * Balikian, Jirair P. — M.D., American University of Beirut; *Radiology*.
- Baraka, Anis S. — M.D., D.A., University of Cairo; *Anesthesiology*.
- * Dagher, Fuad J. — M.D., American University of Beirut; *Surgery*.
- Dagher, Ibrahim K. — M.D., American University of Beirut; *Surgery (Thoracic) (Associate Clinical Professor)*.
- Dragatsi, Grégoire A. — M.D., American University of Beirut; D.T.M. & H., University of London; *Internal Medicine (Associate Clinical Professor)*.
- * Durr, Ibrahim F. — Ph.D., Western Reserve University; *Biochemistry*.

* On Tenure Appointment.

+ On Furlough or Leave.

++ On Leave until December 1971.

- * Farah, Fuad S. — M.D., American University of Beirut; *Internal Medicine (Dermatology)*.
- Firzli, Salim S. — M.D., American University of Beirut; *Pediatrics (Associate Clinical Professor)*.
- * Fuleihan, Farid J.D. — M.D., American University of Beirut; *Internal Medicine (Respiratory)*.
- Ghandur-Mnaymneh, Latifeh — M.D., American University of Beirut; *Pathology*.
- Haddad, Fuad Sami — M.D., American University of Beirut; F.R.C.S., Canada; *Surgery (Neurosurgery) (Associate Clinical Professor)*.
- * Hajj, Samir N. — M.D., American University of Beirut; *Obstetrics and Gynecology*.
- * Halasa, Adnan H.+—M.D., American University of Beirut; M.S., University of Iowa; *Ophthalmology*.
- Ibrahim, Muhammad Z. — M.B., Ch.B., University of Cairo; M.D., Guy's Hospital Medical School, London; *Human Morphology*.
- Idriss, Hassan M. — M.D., American University of Beirut; *Pediatrics (Associate Clinical Professor)*.
- * Issa, Philip J. — M.D., Faculté Française de Médecine, Beirut; *Radiology*.
- * Jabbur, Suhayl J. — M.D., American University of Beirut; Ph.D., University of Washington; *Physiology*.
- * Khachadurian, Avedis K.+—M.D., American University of Beirut; *Biochemistry*.
- * al-Khalidi, Usama A. — M.S., American University of Beirut; Ph.D., University of Michigan; *Biochemistry*.
- * Khuri, Raja N. — M.D., American University of Beirut; *Physiology*.
- * Kurban, Amal K. — M.D., American University of Beirut; *Internal Medicine (Dermatology)*.
- Mamo, Jubran G. — M.D., American University of Beirut; *Ophthalmology (Associate Clinical Professor)*.
- * Matossian, Robert M. — M.D., American University of Beirut; *Bacteriology and Virology*.
- * Matta, Camille S. — M.D., American University of Beirut; M.S., University of Iowa; *Ophthalmology*.
- * Melhem, Rafic E. — M.D., American University of Beirut; *Radiology*.
- Mishalany, Henry G. — M.D., American University of Beirut; *Surgery (Pediatric) (Associate Clinical Professor)*.
- Mnaymneh, Walid A. — M.D., American University of Beirut; *Surgery (Orthopedic) (Associate Clinical Professor)*.
- * Muallem, Musa K. — M.D., American University of Beirut; *Anesthesiology*.
- Mufarrij, Afif H. — M.D., American University of Beirut; *Human Morphology (Associate Clinical Professor)*.

* On Tenure Appointment.

+ On Furlough or Leave.

- Mufarrij, Ibrahim H. — M.D., American University of Beirut; *Obstetrics and Gynecology (Associate Clinical Professor)*.
- * Najjar, Samir S. — M.D., American University of Beirut; *Pediatrics*.
- Nassif, Ramzi I. — M.D., American University of Beirut; *Otorhinolaryngology (Associate Clinical Professor)*.
- Nsouli, Afif Z. — M.D., American University of Beirut; *Surgery (Orthopedic) (Associate Clinical Professor)*.
- * Rizk, Ghassan K. + — M.D., American University of Beirut; *Radiology*.
- * Rubeiz, George A. — M.D., American University of Beirut; *Internal Medicine (Cardiology)*.
- Shamma'a, Munir H. — M.D., American University of Beirut; *Internal Medicine (Gastroenterology) (Associate Clinical Professor)*.
- * Simaan, Joseph A. — M.D., American University of Beirut; *Pharmacology and Therapeutics*.
- * Slim, Michel S. — M.D., American University of Beirut; *Surgery (Pediatric)*.
- * Yacoubian, Hagop D. — M.D., American University of Beirut; *Surgery (Thoracic)*.

ASSISTANT PROFESSORS

- Abu Haydar, Fadlo R. — M.D., American University of Beirut; *Internal Medicine (Gastroenterology) (Assistant Clinical Professor)*.
- Abu Jamra, Fawzi N. — M.D., American University of Beirut; *Surgery (Plastic) (Assistant Clinical Professor)*.
- Alami, Samih Y. — Ph.D., M.D., University of Oklahoma; *Clinical Pathology*.
- Allam, Charles — M.D., Faculté Française de Médecine, Beirut; *Clinical Pathology*.
- Antun, Fuad T. — M.D., American University of Beirut; D.P.M., Ph.D., University of Edinburgh; *Internal Medicine (Psychiatry)*.
- Asfour, Raja Y. — M.D., American University of Beirut; M.S., Columbia University; *Pediatrics*.
- Awdeh, Zuhayr — Ph.D., University of London; *Nutrition*.
- Azzam, Samir A. — M.D., American University of Beirut; *Internal Medicine (Hematology) (Assistant Clinical Professor)*.
- Baghdassarian, Sahag — M.D., American University of Beirut; *Ophthalmology*.
- Barakat, Bassam — M.D., American University of Beirut; *Obstetrics and Gynecology*.
- Barbari, Adel E. — M.D., American University of Beirut; *Internal Medicine (Nephrology) and Physiology*.
- Bitar, John G. — M.D., American University of Beirut; *Pediatrics*.

* On Tenure Appointment.

+ On Furlough or Leave.

- Bridi, George — M.D., American University of Beirut; *Internal Medicine (Nephrology)* (Assistant Clinical Professor).
- Bulos, Suhayl D. — M.D., American University of Beirut; F.R.C.S., Edinburgh; *Surgery (Orthopedic)* (Assistant Clinical Professor).
- Der Kaloustian, Vasken M. — M.D., American University of Beirut, *Pediatrics*.
- Faris, Bishara M. — M.D., American University of Beirut; *Ophthalmology*.
- Ghandur, Mustafa H. — M.D., American University of Beirut; *Pediatrics (Assistant Clinical Professor)*.
- Haddad, Nadra (Abu Feisal) — M.D.; American University of Beirut; *Pediatrics (Assistant Clinical Professor)*.
- Hajjar, Jean-Jacques — M.D., American University of Beirut; *Physiology*.
- Hemadeh, Kamal T. — M.D.; American University of Beirut; *Surgery (Urology)* (Assistant Clinical Professor).
- Hubaytar, Rafik T. — M.D., American University of Beirut; *Internal Medicine (Respiratory)* (Assistant Clinical Professor).
- Iliyya, Fawzi A. — M.D., American University of Beirut; *Obstetrics and Gynecology* (Assistant Clinical Professor).
- Iskandar, George — M.D. American University of Beirut; *Obstetrics and Gynecology* (Assistant Clinical Professor).
- Kabakian, Hrayr — M.D., American University of Beirut; *Radiology*.
- Kaid Bey, Sami A. — M.D., American University of Beirut; *Internal Medicine (Cardiology)* (Assistant Clinical Professor).
- Kanaan-Atallah, Naim I. — M.D., American University of Beirut; *Radiology*.
- Kanawati, Abdallah A. — M.D., University of Damascus; Dip. in Nutrition, University of London; *Nutrition*.
- Karam, Farid K. — M.D., American University of Beirut; *Otorhinolaryngology* (Assistant Clinical Professor).
- Khalifeh, Riad R. — M.D., American University of Beirut; M.S., University of Iowa; *Internal Medicine (Neurology)* (Assistant Clinical Professor).
- Khazin, Aida — M.D., American University of Beirut; *Pediatrics*.
- Khoury, Farid P. — M.D., American University of Beirut; *Clinical Pathology*.
- Malak, Johnnie A. — M.D., American University of Beirut; *Internal Medicine (Dermatology)* (Assistant Clinical Professor).
- Malakian, Artin — Ph.D., University of North Carolina; *Bacteriology and Virology*.
- Moadie, Jean N. — M.D., American University of Beirut; *Internal Medicine (Allergy)* (Assistant Clinical Professor).
- Mroueh, Adnan M. — M.D., American University of Beirut; *Obstetrics and Gynecology*.
- Mukheiber, Nabil W. — M.D., American University of Beirut; *Internal Medicine (Nephrology)* (Assistant Clinical Professor).
- Nabbut, Nassim H. — Ph.D., University of Texas; *Bacteriology and Virology*.
- Nahas, William — M.D., American University of Beirut; *Obstetrics and Gynecology* (Assistant Clinical Professor).

- Nassar, Sami I. — M.D., American University of Beirut; *Surgery (Neurosurgery) (Assistant Clinical Professor)*.
- Nassar, Victor — M.D., American University of Beirut; *Pathology*.
- Nassif, Sami I. — M.D., American University of Beirut; *Pediatrics (Cardiology) (Assistant Clinical Professor)*.
- Obeid, Sami J. — M.D., American University of Beirut; *Surgery (Assistant Clinical Professor)*.
- Puzantian, Vahé — M.D., American University of Beirut; D.P.M., University of Edinburgh; *Psychiatry (Assistant Clinical Professor)*.
- Rahme, Edmond S. — M.D., American University of Beirut; *Internal Medicine (Neurology) (Assistant Clinical Professor)*.
- Rayyis, Suad — M.D., American University of Beirut; *Internal Medicine (Endocrinology) (Assistant Clinical Professor)*.
- Rebeiz, Jean J. — M.D., American University of Beirut; *Pathology*.
- Riad, Wedad M. — M.B., B.Ch., M.D., University of Cairo; *Pathology*.
- Sahakian, John A. — M.D., Faculté Française de Médecine, Beirut; *Obstetrics and Gynecology (Assistant Clinical Professor)*.
- Salem, Antun A. — M.D., American University of Beirut; *Internal Medicine (Gastroenterology) (Assistant Clinical Professor)*.
- Salman, Salah D. — M.D., American University of Beirut; *Otorhinolaryngology*.
- Salti, Ibrahim — M.D., American University of Beirut; Ph.D., University of Toronto; *Internal Medicine (Endocrinology)*.
- Sha'afi, Ramadan I. — Ph.D., University of Illinois; *Physiology*.
- Shediac, Caesar C. — M.D., American University of Beirut; *Internal Medicine (Endocrinology) (Assistant Clinical Professor)*.
- Shehadeh, Issam — M.D., American University of Beirut; *Internal Medicine (Nephrology) (Assistant Clinical Professor)*.
- Shehadeh, Najib H. — M.D., American University of Beirut; *Internal Medicine (Dermatology) (Assistant Clinical Professor)*.
- Shehadeh, Samir I. — M.D., American University of Beirut; *Surgery (Plastic) (Assistant Clinical Professor)*.
- Sinno, Anwar — M.D., American University of Beirut; *Pediatrics (Neurology)*.
- Suidan, Fayez J. — M.D., American University of Beirut; *Obstetrics and Gynecology (Assistant Clinical Professor)*.
- Tomb, Janine — M.D., Faculté Française de Médecine, Beirut; *Pathology*.
- Touma, Amin B. — M.D., American University of Beirut; *Internal Medicine (Cardiology) (Assistant Clinical Professor)*.
- Uthman, Suhayl — M.D., American University of Beirut; *Internal Medicine (Gastroenterology) (Assistant Clinical Professor)*.
- Uwaydah, Marwan M. — M.D., American University of Beirut; *Internal Medicine (Assistant Clinical Professor)*.
- Wakid, Nabil W. — M.S., American University of Beirut; Ph.D., Cambridge University; *Biochemistry*.
- Yashruti, Abdul Latif I. — M.D., American University of Beirut; *Surgery and Human Morphology (Assistant Clinical Professor)*.

LECTURERS

- Abu-Haidar, George I. — M.A., American University of Beirut; *Clinical Pathology (Clinical Biochemistry)*.
- Drooby, Ala'ud-Din S. — M.D., University of Lausanne; D.P.M., Conjoint Board of England; *Psychiatry*.
- Hayek, John C. — M.D., American University of Beirut; D.P.M., University of Durham; *Psychiatry*.
- Kana'an, Khattar Y. — M.D., American University of Beirut; *Anesthesiology*.
- Nasr, Fuad W. — M.D., Faculté de Médecine, Montpellier; *Internal Medicine (Rheumatology)*.
- Nassar, Nabil T. — M.D., American University of Beirut; M.P.H., Johns Hopkins University; *Internal Medicine*.
- Nucho, Charles N. — M.D., American University of Beirut; *Internal Medicine*.
- Srouji, Elias + — M.D., American University of Beirut; *Pediatrics*.
- Thaddeus, Jacob D. — M.D., American University of Beirut; *Industrial Medicine*.

INSTRUCTORS

- Ariss-Timani, Majd — M.D., Faculté Française de Médecine, Beirut; *Pediatrics*.
- Arslanian, Erika — M.D., University of Erevan, Armenia; *Anesthesiology*.
- Ayyoub, Charles S. — M.B., B.S., University of Adelaide; D.C.H., Royal College of Physicians, London; M.R.C.P., Edinburgh; *Pediatrics (Clinical Instructor)*.
- Baloglou, Paul J. — M.D., Faculté Française de Médecine, Beirut; *Ophthalmology (Clinical Instructor)*.
- Barakat, Nabil — B.D.S., University of Cairo; M.S., Loyola University; *Surgery and Otorhinolaryngology (Clinical Instructor)*.
- Bikhazi, Kamal — M.D., American University of Beirut; *Human Morphology and (Clinical Instructor) Surgery*.
- Chakhtoura, Antoine — M.D., Faculté Française de Médecine, Beirut; *Psychiatry (Clinical Instructor)*.
- Dabbous, Ibrahim A. — M.D., American University of Beirut; *Pediatrics (Clinical Instructor)*.
- Dagher, Rifaat — M.D., American University of Beirut; *Surgery (Clinical Instructor)*.
- Jabir, Raif M. — M.D., American University of Beirut; *Internal Medicine (Endocrinology) (Clinical Instructor)*.
- Jubran, Fuad — M.D., American University of Beirut; *Internal Medicine (Cardiology) (Clinical Instructor)*.
- Juljulian, Harutioun — M.D., University of Padua; *Internal Medicine (Dermatology) (Clinical Instructor)*.
- Khawwam, Edward J. — M.D., Faculté Française de Médecine, Beirut; *Ophthalmology*.

+ On Furlough or Leave.

- Manougian, Elizabeth M. — M.S., American University of Beirut; *Pharmacology and Therapeutics*.
- Moghrabi, Rafik — M.D., Faculté de Médecine, Bordeaux; *Anesthesiology*.
- Nahra, Khalil — M.D., American University of Beirut; *Surgery (Clinical Instructor)*.
- Najjar, Faysal — M.D., American University of Beirut; *Surgery (Clinical Instructor)*.
- Nuwayri-Salti, Nuha — M.D., American University of Beirut; *Human Morphology*.
- Salamun, Samir G. — M.D., American University of Beirut; *Ophthalmology (Clinical Instructor)*.
- Wahbeh, Nabila — M.D., American University of Beirut; *Pediatrics (Hematology) (Clinical Instructor)*.
- Yenikomshian, Stepan — M.D., American University of Beirut; *Internal Medicine (Cardiology) (Clinical Instructor)*.
- Zaidan, Michel — M.D., Faculté de Médecine, Montpellier; *Psychiatry (Clinical Instructor)*.

ASSISTANT INSTRUCTOR

- Tilkian, Ohannes S. — *Human Morphology (Technical Supervisor and Assistant Instructor)*.

RESEARCH ASSOCIATE

- Fawaz, Eva — M.S., American University of Beirut; *Pharmacology and Therapeutics*.

RESEARCH ASSISTANTS

- Abu Samra, Shafeeka A. — B.A., Beirut College for Women; *Nutrition*.
- Agulian, Samuel K. — B.S., American University of Beirut; *Physiology (Senior Research Assistant)*.
- Assaf, Maha — B.S., University of London; *Radiology*.
- Bahuth, Nadia B. — B.S., American University of Beirut; *Human Morphology (Senior Research Assistant)*.
- Bahuth, Wadad — B.S., American University of Beirut; *Pathology*.
- Barakat, Mona — B.S., American University of Beirut; *Pediatrics*.
- Barsoumian, Edward — M.S., American University of Beirut; *Bacteriology and Virology*.
- Bizri, Hana — B.S., Beirut College for Women; *Pharmacology and Therapeutics*.
- Chelebian, Antranig K. — *Physiology*.
- Hallal, Rowayda — M.S., American University of Beirut; *Pediatrics*.
- Hanna, Sami — B.S., American University of Beirut; *Otorhinolaryngology*.
- Imad, Azmi P. — B.S., American University of Beirut; *Radiology (Senior Research Assistant)*.

- Jabara, Haifa H. — B.S., Beirut College for Women ; *Biochemistry*.
- Jabbur, Karim A. — B.A., American University of Beirut ; *Pharmacology and Therapeutics*.
- Jebejian, Kevork D. — B.A., American University of Beirut ; *Pediatrics*.
- Katul, George J. — B.E., American University of Beirut ; *Electronics (Senior Research Assistant)*.
- Kissoyan, Berj — B.S., American University of Beirut ; *Physiology*.
- Krajian, Berjouhy — B.S., American University of Beirut ; *Bacteriology and Virology*.
- Meneshian, Gilbert K. — B.S., American University of Beirut ; *Surgery*.
- Meneshian, Marie-Louise — B.S., American University of Beirut ; *Pathology*.
- Mire, Joanne — M.S., American University of Beirut ; *Human Morphology (Senior Research Assistant)*.
- Nassar, Najwa — B.S., Beirut College for Women ; *Pharmacology and Therapeutics*.
- Saadeh, Faysal A. — M.S., American University of Beirut ; *Pathology (Senior Research Assistant)*.
- Sahli, Itaf F. — B.S., American University of Beirut ; *Clinical Pathology*.
- Srouji, Amira — M.S., American University of Beirut ; *Nutrition*.
- Tchalian Read, Marie A. — B.S., American University of Beirut ; *Nutrition*.
- Tejirian, Asdghig K. — B.S., American University of Beirut ; *Pharmacology and Therapeutics*.
- Tenekjian, Krikor K. — B.S., American University of Beirut ; *Internal Medicine (Dermatology)*.
- Tomey, George F. — B.E., American University of Beirut ; M.S.E.E., University of Washington ; *Electronics (Senior Research Assistant)*.
- Zekian, Beatrice Y. — B.S., in Pharmacy, American University of Beirut ; *Nutrition*.

ASSOCIATES

- Abu-Jaudeh, Ceasar N. — M.D., American University of Beirut ; F.A.C.S. ; *Otorhinolaryngology*.
- Abu-Zahr, Labib K. — M.D., American University of Beirut ; *Surgery*.
- Attallah, Basil K. — M.D., American University of Beirut ; *Internal Medicine*.
- Atiyeh, Maurice N. — M.D., American University of Beirut ; *Internal Medicine*.
- Bakdash, Hisham — M.D., University of Damascus ; *Surgery (Neurosurgery)*.
- Chatty, Eyad — M.D., University of Damascus ; *Human Morphology*.
- Haddad, Fuad S. — M.D., University of Istanbul ; *Anesthesiology*.
- Haddad, Paul — M.D., Faculté Française de Médecine, Beirut ; *Pediatrics*.
- Haji, Muhsin — M.D., American University of Beirut ; *Internal Medicine (Cardiology)*.
- Harboyan, Garbis — M.D., American University of Beirut ; *Otorhinolaryngology*.

- Kabbani, Mahmoud — M.D., American University of Beirut ; *Surgery*.
 Musallam, Salim — M.D., American University of Beirut ; *Pediatrics*.
 Noujaim, Sami — M.D., Faculté Française de Médecine, Beirut ; *Surgery*.
 Pasha, Najdat Ibrahim — M.D., American University of Beirut ; *Surgery (Plastic)*.
 Rashdouni, Leon D. — M.D., American University of Beirut ; *Internal Medicine (Cardiology)*.
 Rubeiz, Michel T. — M.D., American University of Beirut ; *Surgery (Plastic)*.
 Saad, Atif R. — M.D., American University of Beirut ; *Internal Medicine (Gastroenterology)*.
 Saade, Butros B. — M.D., Faculté Française de Médecine, Beirut ; *Physical Medicine and Rehabilitation*.
 Sanjad, Sami — M.D., American University of Beirut ; *Pediatrics*.
 Sayegh, Roger — M.D., American University of Beirut ; *Ophthalmology*.
 Shu'ayb, Wehbeh, A. — M.D., American University of Beirut ; *Surgery (Thoracic)*.
 Tamari, Joseph W. — D.Ch.D., Faculté Française de Médecine, Beirut ; D.S.D., Northwestern University ; *Associate in Human Morphology*.

MEMBERS OF THE SCHOOL OF PUBLIC HEALTH WHO CONTRIBUTE TO THE TEACHING IN THE SCHOOL OF MEDICINE.

- Abou Daoud, Kamal T. — M.D., D.T.M.H., M.S.Hyg.
 Acra, Aftim N. — Ph.C., M.P.H.
 Edeson, John — M.D., D.P.H.
 Churchill, Charles — Ph.D.
 Dajani, Said — M.D., D.P.H.
 Frayha, George — Ph.D.
 Haddad, Nadim — M.D., M.P.H.
 Harfouche, Jamal K. — M.D., M.S.Hyg., D.P.H.
 Mourad, Sah'l — M.D., M.P.H., D.P.H.
 Stephen, Lorne E. — D.V.M., D.A.P. & E.
 Sweatman, Gordon K. — Ph.D.
 Zurayk, Huda + — Ph.D.

General Information

The School of Medicine is a member of the Association of American Medical Colleges and is subject to the regulations of the Board of Regents of the State of New York where the University is incorporated.

The entrance requirements and the program leading to the degree of Doctor of Medicine are similar to those of standard medical schools in the United States except that the course of study has been extended from four years to five years to conform with Lebanese law. The fifth year, which consists of practical work in the

+ On Furlough or Leave.

University Hospital and other affiliated hospitals, is an internship.

Graduates are qualified for the licensing examination in Lebanon upon completion of the fifth year student-internship.

The School of Medicine endeavors to provide opportunities for its undergraduate students to develop individual initiative, creative ability and professional leadership through participation in extra-curricular seminars, discussion groups, research projects and student organizations. A number of the students themselves have made valuable contributions along this line as officers of the Medical Students' Society.

Although the primary function of the School is to give students a basic training in medicine, the School also offers specialist training on a selective and limited basis. This program, inaugurated in 1945, consists of either a three or a four year residency in the University Hospital involving training in a medical specialty.

A program of postgraduate medical education provides several short refresher courses in the medical specialties each year to physicians in the area. These courses are conducted jointly by members of the Faculty and prominent specialists from America and Europe. In addition the Medical Faculty and Alumni sponsor each year a Middle East Medical Assembly in which 35 to 40 prominent physicians from America and Europe participate. Between 400 and 500 physicians attend these sessions.

A chapter of Alpha Omega Alpha, the honor medical society, was granted to the School of Medicine in 1958. Members are elected by the membership of Alpha Omega Alpha on the basis of high scholarship and good moral character.

The physical plant of the School of Medicine includes Van Dyck Hall which houses the departments of Biochemistry, Human Morphology, Pharmacology and Therapeutics and Physiology with their teaching laboratories and classrooms, the Medical Library, and the offices of the Dean of the Faculties of Medical Sciences and the Director of the School of Medicine; Phase I of the new Medical Center which houses the academic offices and research laboratories of the Departments of Anesthesiology, Bacteriology and Virology, Internal Medicine, Obstetrics and Gynecology, Ophthalmology, Otorhinolaryngology, Pathology, Pediatrics, Radiology and Surgery, as well as the Nutrition Research Program; Phase II of the new Medical Center which houses the academic offices and research laboratories of the Department of Clinical Pathology and the University Hospital.

Clinical teaching is carried out in the Out-patient Department located in the new Medical Center, the University Hospital with a capacity of 440 beds, and the affiliated hospitals which include the Sidon Government Hospital, the Lebanon Hospital for Mental and Nervous Disorders, and the Hamlin Hospital for Chest Diseases.

The new Basic Science Building, part of Phase III, is at an advanced state of construction. Expected occupancy is in the summer of 1973. Also under construction as part of Phase III are a new Medical Library and a Post-Graduate Medical Center.

ADMISSION

The School of Medicine was established to give properly qualified candidates of the Near East the opportunity for sound training in both the art and science of medicine and, consequently, preference for admission is given to candidates from the Near East. Enrollment in the first year is limited to about 50 students who are chosen

for personal as well as academic qualifications. In most cases a student of the University is not considered for admission to the School of Medicine if his general average is below 75 or if he has incurred any failures.

For complete and detailed information regarding admission to the University, including certificates recognized, see pages 17 to 27 of the section on Admissions at the beginning of the catalogue.

To be eligible for admission to the School of Medicine a student must be at least 18 years old and must have completed the legal premedical educational requirements of his country. The specific requirements for admission to first year Medicine are found on page 26, and to Graduate Work in the section on Admission under Graduate Study at the end of this catalogue.

GRADUATION REQUIREMENTS

To be eligible for the degree of Doctor of Medicine a student must complete the curriculum of the School of Medicine, must be in residence during the fifth year and must do satisfactory work in various sections of the fifth year. The degree is granted with *distinction* to students who complete the first four years with an average of 85 or more, who incur no academic delinquencies, who complete three years in residence at the School of Medicine of this University, who attain a rating of excellent in at least one section in the fifth year and who are recommended by the Clinical Committee. The recommendation of the Clinical Committee is based upon a comprehensive appraisal of the student's intellect and character; particular weight is given to the qualities demonstrated during the fifth year.

To be eligible for the degree of Bachelor of Science, a degree granted by the Faculty of Arts and Sciences, a student must complete satisfactorily the program of the Faculty of Arts and Sciences through the Junior year including the general graduation requirements, must be in residence during the Junior year and must complete satisfactorily the first year in the School of Medicine. This degree does not necessarily entitle students to promotion in the School of Medicine. The degree is granted with *distinction* to students who are recommended by the Preclinical Committee, who complete the Junior year in the Faculty of Arts and Sciences of this University with an average of 80 or more and who complete the Junior year and first year Medicine with a cumulative general average of 85 or more. The degree may be granted with *high distinction* to students who complete the Junior year and first year Medicine with a cumulative general average of 90 or more.

ACADEMIC RULES AND REGULATIONS

Grades and Promotion

In the School of Medicine the following grading system is used in the first four years: 90-100 Excellent; 80-89 Good; 70-79 Fair; below 70 Failing. In the fifth year students are evaluated as Excellent, Satisfactory or Unsatisfactory.

For promotion from one class to the next higher a student must pass all courses, attain an average of 75 or more and be recommended by the Preclinical or Clinical Committee as the case may be.

In addition to these minimum academic requirements, each student in the Medical program must have a speaking knowledge of Arabic before entering the third year. This requirement may be waived by special vote of the Clinical Committee.

Since 1966 students are required to take the examinations of the National Board of

Medical Examiners which are given in two parts. Part I, covering the material taught in the first two years, is given to the second year class. Part II, covering the material taught in the third and fourth years, is given to the fourth year class. The scores achieved in these examinations make up 25% of the final grades of second and fourth year courses.

Regular attendance is required at lectures, clerkships and laboratories. Absences of one third or more of the period of clerkship or courses will be reviewed by the appropriate Committee which decides on the measures to be taken.

To be placed on the Dean's Honor List a student must: (a) have a minimum grade average of 80; (b) stand in the approximate top 15% of his class; (c) have no failure; (d) have no special condition for promotion; (e) not be repeating; and (f) be taking a minimum of two-thirds of the scheduled hours of his class.

Failures and Deficiencies

Any student in the first or second year who passes all courses with an average of less than 75 is required to repeat the year or to pass special written general examinations before promotion. These examinations are in the following fields: for first year students, the human morphology group including histology, and the physiology group including biochemistry; for second year students, the pathology group including bacteriology, parasitology, introduction to medicine and clinical pathology, and the pharmacology unit.

A student in the first or second year who fails in not more than one major¹ course, one major and one minor¹ course, or two minor courses may be allowed to take make-up examinations. Make-up examinations are given just prior to the beginning of regular classes.

A student failing in any course at the end of the first semester will be warned. A student failing three or more courses at the end of the first or second semester during any academic year may be dropped.

A student in the third or fourth year who fails in any section may be asked to repeat the section, or to spend his month of vacation in the Department giving the course, or repeat the year, depending on the recommendation of the Department and the decision of the Clinical Committee.

A student in the third or fourth year who fails in two sections or who has a general average below 75 may be required to repeat the year or be dropped from the School, depending on the decision of the Clinical Committee.

A student in the fifth year with unsatisfactory work in a section will be required to repeat that section. A student with unsatisfactory work in two or more sections will be required to repeat the year.

Students failing the general examinations or the course make-up examinations are required to repeat the year. A minimum satisfactory average for students repeating the first or second year is 80. Students repeating the third or fourth year must score a final grade of 75 or above in each course. No student may repeat the same year more than once.

GRADUATE STUDY

Full information and general requirements for graduate study are found in the special chapter at the end of this catalogue entitled Graduate Study.

1. A course that is weighted at 3 or more semester credits is considered major (see curriculum).

Curriculum

	No. of Weeks	Lec. & Rec. Hours	Lab. Hours	Total Hours	Se- mes- ter Credit Hours
First Year					
Biochemistry 211 Basic Biochemistry	16	48	64	112	5
Human Morphology 207 Gross Anatomy	16	27	192	219	7
Human Morphology 209 Basic Histology	16	34	48	82	3
Interdepartmental 200 Homeostasis	4	47	70	117	5
Interdepartmental 202 Cardiovascular System	2	22	31	53	2
Interdepartmental 204 Metabolism	4	42	75	117	5
Interdepartmental 206-207 Social and Preventive Medicine	32	34	46	80	4
Interdepartmental 208 Nervous System	5	86	54	140	6
Physiology 210 General Physiology and Intro- ductory Biophysics	16	24	24	48	2
<i>Total</i>				<u>968</u>	<u>39</u>
Second Year					
Bacteriology 227 Bacteriology and Virology	10	50	90	140	6
Interdepartmental 221-222 Introduction	19	98	196	294	12
Internal Medicine 227 Psychopathology	16	16	32	48	2
Pathology 229 General Pathology	14	72	133	205	9
Pharmacology 228 Pharmacology and Toxicology	16	96	96	192	9
Public Health EB 225 Medical Statistics	16	16	32	48	2
Public Health EB 226 Epidemiology	16	16	32	48	2
Public Health TH 225 Medical Parasitology and Mycology	6	30	54	84	3
<i>Total</i>				<u>1059</u>	<u>45</u>

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	No. of Weeks	Lect. & Rec. Hours	Lab. or Clin. Clerk- ships Hours	Total Hours
Third Year				
Clinical Conferences	36	180	—	180
Internal Medicine 246 Clinical Clerkship	16	120	640	760
Internal Medicine 247 Dermatology and Syphilology	5	20	—	20
Internal Medicine 248 Medical Ethics	1	4	—	4
Internal Medicine 250 Forensic Medicine	3	12	—	12
Internal Medicine 225 Psychiatry	6	25	—	25
Obstetrics and Gynecology 247 Obstetrics and Gynecology	8	32	—	32
Obstetrics and Gynecology 257 Clinical Clerkship	9	—	360	360
Ophthalmology 247 Introduction to Ophthalmology	3	12	—	12
Otorhinolaryngology 247 Lectures on Otorhinolaryn- gology	4	16	—	16
Pediatrics 246 Clinical Clerkship	9	35	360	395
Public Health EB 267 Clerkship in Preventive Medicine and Public Health	2	—	80	80
Surgery 240 Introduction to Clinical Surgery	32	32	—	32
<i>Total</i>				1928
Fourth Year				
Anesthesiology 266 and 267 Clinical Seminar and Clinical Clerkship	3	11	120	131
Clinical Conferences	44	220	—	220
Internal Medicine 265 Psychiatry Clinical Clerkship	4	—	160	160
Internal Medicine 266 Clinical Clerkship	12	—	480	480
Internal Medicine 267 Dermatology and Syphilology ¹	12	—	48	48
Ophthalmology 267 Clinical Clerkship and Seminar	3	—	120	120
Otorhinolaryngology 267 Clinical Clerkship	3	—	120	120
Pediatrics 267 Clinical Clerkship	8	—	320	320
Surgery 267 Clinical Clerkship	12	—	480	480
<i>Total</i>				2079

1. The students spend one day a week in Dermatology and Syphilology during their twelve weeks stay in Internal Medicine.

Fifth Year

The student is given the option to choose one of the following :

	No. of Weeks	Total Hours
1. Straight Internship		
Internal Medicine 288 or Pediatrics 288	48	2880
Clinical Conferences		300
		Total 3180
2. Mixed Internship		
Internal Medicine 287 or Pediatrics 287	13	780
Surgery 287	9	540
Obstetrics and Gynecology 287	4	240
Sidon Government Hospital	4	240
Elective in any department	18	1080
Clinical Conferences		300
		Total 3180
3. Rotating Internship (offered to special students)		
Internal Medicine 287	9	540
Surgery 287	9	540
Obstetrics and Gynecology 287	4	240
Ophthalmology 287	9	540
Otorhinolaryngology 287	9	540
Pediatrics 287	4	240
Sidon Government Hospital	4	240
Clinical Conferences		300
		Total 3180

Courses

Numbers Preceding Course Titles

1. Courses required for the Doctor of Medicine degree are numbered 200-299, as follows:

 200-219 indicate courses given in first year Medicine

 220-239 indicate courses given in second year Medicine

 240-259 indicate courses given in third year Medicine

 260-279 indicate courses given in fourth year Medicine

 280-299 are reserved for clinical clerkships during the fifth year, which is a year of internship.

For first and second years, odd numbers refer to first semester courses, and even numbers to second semester courses. Year courses are indicated by a hyphen between the two numbers.

2. Graduate courses leading to Master's and Doctor of Philosophy degrees are numbered 300-399.

3. Regular medical courses approved for graduate work (M.S. and Ph.D. program) have two numbers. The number in brackets is used only for graduate students.

4. Numbers preceded by "Interdepartmental" indicate integrated courses taught by two or more Departments together.

Numbers Following Course Titles

The first number following the title of a course indicates the total number of lecture, conference and discussion hours given.

The second number indicates the total laboratory or clinical practice hours.

The third number indicates the number of semester credit hours. Credit hours are used in conjunction with first and second year courses only.

Description of courses

All the following courses, except those indicated as electives, are required of students working toward the degree of Doctor of Medicine. Courses so designated may be elected with permission of the instructor by properly qualified students of the School of Pharmacy; a few marked courses are open to undergraduate students in the Faculty of Arts and Sciences.

Detailed course descriptions are available in the individual Departments for those requiring further information.

INTERDEPARTMENTAL TEACHING

First Year

200 (300) *Homeostasis.* 47.70; 5 cr; annually. This integrated topic covers the study of the internal environment and its physiological regulation by two homeostatic organs, the lungs and the kidneys. Didactic lectures cover the physiology, biochemistry and histology of this broad topic, treating the subjects of the internal environment, homeostasis and feedback mechanisms, blood, the lung, the kidney and electrolytes. Laboratory exercises closely parallel the didactic teaching. The course lasts 4 weeks.

202 (302) *Cardiovascular System.* 22.31; 2 cr; annually. The structure and function of the cardiovascular system is presented in an integrated manner. Laboratory exercises are intended to familiarize the student with the tools and methods of physiological experimentation. Didactic hours are equally divided between the two subjects of cardiac and vascular physiology.

204 (304) *Metabolism.* 42.75; 5 cr; annually. This covers the study of the gastrointestinal tract, biochemical nutrition, metabolism and its regulation by the endocrine system, and the reproductive system. The biochemistry, physiology and histology of the organs and systems are presented in an integrated manner. The course lasts 4 weeks.

206-207 *Social and Preventive Medicine.* 34.46; 4 cr; annually. An integrated course stressing psychological and sociological aspects of medicine.

208 (308) *Nervous System.* 86.54; 6 cr; annually. This covers the study of structure and function of the human nervous system, and lasts 5 weeks.

Second Year

221-222 *Introduction to Medicine.* See Department of Internal Medicine.

Third Year

241-242 Specialty Lecture Series. 153.0. Given by the Departments of Internal Medicine (Dermatology, Legal Medicine and Psychiatry), Obstetrics and Gynecology, Ophthalmology, Otorhinolaryngology, and Surgery.

Fifth Year

280 Student Internship in Sidon Government Hospital. 0.240.

Graduate

309 Biology of Nerve and Muscle. 48.0; 3 cr; alternate years. A multidisciplinary and integrated study of the anatomy, physiology, biochemistry, pharmacology and pathology of nerve and muscle with emphasis on skeletal muscle.

DEPARTMENT OF ANESTHESIOLOGY

Chairman : Egbert, L.

Professors : Baraka, A. ; Muallem, M.

Lecturer : Khattar, K.

Instructors : Arslanian, E. ; Moghrabi, R.

Associate : Haddad, F.S.

266 Clinical Seminars. 11.0. Each group of students serving a clinical clerkship in Anesthesiology is given a course of 12 seminars in practical aspects of anesthesiology and resuscitation.

267 Clinical Clerkship. 0.120. While the above series of seminars is in progress the students spend 3 weeks in the Department of Anesthesiology. They learn the care of unconscious patients, and administer anesthesia under supervision.

DEPARTMENT OF BACTERIOLOGY AND VIROLOGY

Chairman : Garabedian, G.

Professors : Malakian, A. ; Matossian, R. ; Nabbut, N. ; Uwaydah, M.

The Department of Bacteriology and Virology offers undergraduate courses to students in the Schools of Medicine, Pharmacy, Public Health and Nursing. It also offers a graduate program leading to the degree of *Master of Science in Microbiology* including immunology, medical microbiology and virology. The applicant for graduate study should have adequate undergraduate preparation which should be wide in scope and include various aspects of biology, physics and chemistry. Additional course work is arranged according to the student's interest and competence.

15 Bacteriological Technique I. 2.4; 4 cr; 1st semester, annually. Techniques for the identification of disease-causing microorganisms.

16 Bacteriological Technique II. 2.6; 5 cr; 2nd semester, annually.

102 Microbiology for Nurses (Diploma). 2.2; 3 cr; annually. An introductory course in medical microbiology.

227 (301) Bacteriology and Virology. 5.6; 6 cr; 10 wks, annually. Fundamental

aspects of microbial genetics and metabolism; principles of immunity and immunobiology; the pathogenesis, immunity and laboratory diagnosis of diseases caused by bacteria, rickettsiae and viruses. For students of Medicine II; others by consent of the instructor.

237 *Microbiology for Nurses* (Degree). 2.2; 3 cr; 8 wks, annually. Fundamental aspects of medical microbiology. For Nursing students.

248 *Medical Microbiology*. 3.4; 5 cr; annually. Fundamental aspects of medical microbiology. For Pharmacy students.

302 *Animal Virology*. 2.2; 3 cr; alternate years. The molecular biology of animal viruses; viral infections in man and animals. Prerequisite: 227 (301) or 248.

325 *Advanced Immunology*. 3.0; 3 cr; alternate years. Biological and biochemical aspects of host resistance and immunity. Prerequisite: 227 (301) or 248.

326 *Experimental Immunology*. 3.0; 3 cr; alternate years. Methods employed in immunological research. Prerequisite: 227 (301) or 248.

362 *Diagnostic Bacteriology and Virology*. 1.6; 4 cr; alternate years. Procedures employed for the isolation and identification of bacterial and viral pathogens. Prerequisite: 227 (301) or 248.

391 and 392 *Journal Club*. 1.0; 1 cr; annually. A review of current microbiological literature. Graduate students and Staff.

393 and 394 *Microbiology Seminar*. 1.0; 1 cr; annually. Recent advances in bacteriology, immunology and virology. Graduate students and Staff.

399 *M.S. Thesis*.

DEPARTMENT OF BIOCHEMISTRY

Acting Chairman : Durr, I.

Professors : Khachadurian, A. ; al-Khalidi, U. ; Wakid, N.

Biochemistry is a multidisciplinary graduate field. The graduate program leads to the degrees of M.S. and Ph. D.

The requirements for admission to the graduate program are: a degree of B.A. or B.S. from a college or university, an academic record above average, grade 80 (letter grade of B) or better. Students are expected to have completed the following courses or their equivalent: Biology 201 and 202, Chemistry 201, 202, 215 and 216 and Physics 101 and 102. In addition to the above the completion of as many as possible of the following as an undergraduate is highly desirable: Biochemistry 211, Biology 274 and 243, Chemistry 206, 217, 218 and 225 and Mathematics 201 and 202.

211 (300) *Basic Biochemistry*. 4.8.64; 5 cr; 1st semester. For students of Medicine, Pharmacy, senior Science and graduate students. Prerequisite: Organic Chemistry and consent of Department.

248 *Biochemistry of Body Fluids and Tissues*. 2 cr; 2nd semester. Primarily for students of Pharmacy. Prerequisite: 211.

303 *Advanced Biochemistry*. 3 cr; 1st semester; alternate years. Prerequisite: 211 (300).

305 *Metabolism*. 3 cr; 1st semester; alternate years. Prerequisite: 211 (300).

307 and 308 *Biochemical Methods*. 4 cr each. Prerequisite: 211 (300). Ordinarily open only to graduate students in Biochemistry.

309 and **310** *Projects in Biochemistry*. Prerequisite: completion of or enrollment in 303 or 305.

311 and **312** *Biochemistry Tutorial*. 2 cr each.

313 *General Readings in Biochemistry and Related Topics*. 2 cr. A summer course given in conjunction with the Department of Physiology.

314 *Physiological Chemistry*. 2 cr; 2nd semester. The biochemistry of blood and other specialized tissues and of the organism as a whole. Prerequisite: 221 (300).

315 and **316** *Research Seminar*. 1 cr each. Prerequisite: 211 (300).

317 and **318** *Biochemical Literature Survey*. 1 cr each. Prerequisite: 211 (300).

319 and **320** *M.S. Thesis*. Original research under staff supervision, leading to the M.S. degree.

391 and **395** *Ph.D. Thesis*. Original research under staff supervision, directed toward the Ph.D. degree.

Homeostasis. See 200 in section on "Interdepartmental Teaching".

Metabolism. See 204 in section on "Interdepartmental Teaching".

DEPARTMENT OF CLINICAL PATHOLOGY

Acting Chairman: Alami, S.

Professors: Allam, C.; Khuri, F.; Nassif, R.E.

Lecturer: Abu-Haidar, G.

11-12 *Clinical Chemistry I and II*. 2.4; 4 cr each course.

17-18 *Clinical Pathology I and II*. 1.3; 2 cr each course.

Introduction to Medicine. See 221-222 under Department of Internal Medicine.

DEPARTMENT OF HUMAN MORPHOLOGY

Chairman: Afifi, A.

Professors: Ibrahim, M.; Mufarrij, A.; Yashruti, A.

Instructors: Bikhazi, K.; Nuwairy-Salti, N.; Tilkian, H.

Associates: Chatty, E.; Tamari, J.

The Department of Human Morphology offers undergraduate courses to students in the Schools of Medicine, Pharmacy and Nursing; and graduate courses and a program leading to the M.S. degree. Students wishing to major in Human Morphology must first secure the approval of the Department.

200 *Basic Anatomy*. 16.16; 2 cr. Gross anatomy for Nursing students.

207 (301) *Gross Anatomy*. 27.192; 7 cr. A careful dissection and prosection of the entire body. Correlation of the structure and function of organs. Facts of topographic and regional anatomy applicable to the practice of medicine and surgery.

209 (303) *Basic Histology*. 34.48; 3 cr. The microscopic and ultrastructural appearances of tissues, relating structure to function.

Nervous System. See 208 in section on "Interdepartmental Teaching".

Cardiovascular System. See 202 in section on "Interdepartmental Teaching".

Metabolism. See 204 in section on "Interdepartmental Teaching".

246 *Anatomy-Physiology.* See Department of Physiology.

310-311 *Methods in Morphology.* 2 cr; annually. A guided laboratory course in methods used in morphologic research. Prerequisite: permission.

312 *Anatomy Tutorial.* 2 cr; annually. A guided literature review aimed at the formulation of a special research problem. Prerequisite: permission.

313 *Directed Reading and Research.* Credit hours variable. Reading and research assignments under supervision of an advisor, aimed at formulating an original research project.

314-315 *Seminar.* 1 cr; annually. Presentation and discussion of topics related to morphology. Prerequisite: permission.

317 *Principles of Electron Microscopy.* 32.0; 2 cr. Lectures and demonstrations on principal technics of electron microscopy.

318 *Principles of Histochemistry.* 32.0; 2 cr. Lectures and demonstrations on principal technics of histochemistry.

397-398 *M.S. Thesis.* Credit hours variable. Original research under staff supervision, leading to the M.S. degree.

Biology of Nerve and Muscle. See 309 in section on "Interdepartmental Teaching."

Lectures and Laboratory Demonstration in Anatomy. Given to the resident Staff.

DEPARTMENT OF INTERNAL MEDICINE

Chairman: Tabbara, R.

Professors: Abu Feisal, K.; Abu Haydar, F.; Abu Haydar, N.; Afifi, A.; Antoun, F.; Azar, J.; Azzam, S.; Berbari, A.; Bridi, G.; Dragatsi, G.; Farah, F.; Fuleihan, F.; Haddad, C.; Hubaytar, R.; Kaid Bey, S.; Khachadurian, A.; Khalifeh, R.; Khuri, R.; Kurban, A.; Malak, J.; Manugian, A.; Moadie, J.; Mukheiber, N.; Puzantian, V.; Rahme, E.; Rayyis, S.; Rebeiz, J.; Rubeiz, G.; Sabra, F.; Salem, A.; Salem, Ph.; Salti, I.; Shahid, M.; Shamma'a, M.; Shediak, C.; Shehadeh, I.; Shehadeh, N.; Shwayri, E.; Touma, A.; Uthman, S.; Uwaydah, M.

Lecturers: Drooby, A.; Hayek, J.; Nasr, F.; Nassar, N.; Nucho, C.; Thaddeus, J.

Instructors: Chakhtoura, A.; Jabir, R.; Juljulian, H.; Jubran, F.; Zeidan, M.

Associates: Atallah, B.; Atiyeh, M.; Hajj, M.; Rashdouni, M.; Saad, A.; Saadeh, B.

The Department of Internal Medicine offers undergraduate courses, clerkships and internships to medical students and a 3-year residency program for specialty training in Internal Medicine. Subspecialty training in some fields is also offered to selected candidates.

Social and Preventive Medicine. See 206-207 in section on "Interdepartmental Teaching.

221-222 *Introduction to Medicine.* 98.196; 12 cr; annually over 19 weeks. A multidisciplinary and integrated approach to mechanism of disease based on the organ system including pathophysiology, laboratory methods (clinical pathology) and physical diagnosis.

227 *Psychopathology.* 1.2; 2 cr; annually. The student is introduced to abnormal psychological mechanisms in preparation for his courses in psychiatry. Lectures

are correlated with patient demonstrations.

246 Clinical Clerkship. 120.640. 16 weeks, morning and afternoon daily. Students are responsible for the history, physical examination, laboratory work and other clinical details of assigned hospital patients. Students in groups of 5 are assigned to a tutor.

247, 267 Dermatology and Syphilology. 20.0; 0.48. Lectures and slide demonstrations on diseases of the skin and on syphilis for Medicine III students. Sections of the fourth year class in outpatient clinic for group teaching on patients.

248 Medical Ethics. 4.0.

250 Forensic Medicine. 12.0.

225 and 265 Psychiatry and Psychiatry Clinical Clerkship. 25.0; 0.160. Lectures in the third year on the general principles of psychiatry : morbid psychology; true psychoses; child psychiatry; psychoneurosis; psychotherapeutic procedures. Fourth year students spend four weeks morning and afternoon daily in the Lebanon Hospital for Mental and Nervous Disorders. They are assigned cases and participate in the clinical demonstrations and discussions.

266 Clinical Clerkship. 0.480. 12 weeks. In the morning each student works up a new clinical patient and presents the patient to an attending physician. In the afternoon he attends various specialty clinics and seminars.

287 Student Internship. 0.780. The fifth year class spends 13 weeks in the Department of Internal Medicine of the University Hospital. Elective Student internship of 8-18 weeks is also offered.

288 Straight Student Internship. 0.2880. Fifth year students spend 48 weeks in the Department of Internal Medicine of the University Hospital.

Weekly Conferences. Basic Medicine, Cardiology, Gastroenterology, Medical Grand Rounds, Nephrology and Neurology. Medicine III, IV, V and Staff.

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Chairman: Bickers, W.

Professors: Azoury, R.; Barakat, B.; Hajj, S.; Illiya, F.; Iskandar, G.; Kirkwood, S.; Mroueh, A.; Mufarrij, I.; Nahhas, W.; Sahakian, J.

247, 257 Obstetrics and Gynecology. 32.360. 9 weeks. Daily seminar in normal and abnormal obstetrics and gynecology during 9 weeks of clerkship. Grand Rounds, Noon Conference weekly, Clinical Clerkship in Hospital and O.P.D. Dystocia clinic in afternoons. Deliveries in delivery suite for 3 weeks. Gynecologic and prenatal examinations in Ras Beirut, Karaguezian and Mreiji clinics.

287 Student Internship. 0.240. 4 weeks. Operative obstetrics and gynecology. Research.

DEPARTMENT OF OPHTHALMOLOGY

Chairman: Matta, C.

Professors: Baghdassarian, S.; Diab, A.; Faris, B.; Halasa, A.; Mamo, J.

Instructors: Baloglou, P.; Khawwam, E.; Salamun, S.

Associate: Sayegh, R.

247 Introduction to Ophthalmology. 12.0. Third year medical students.

267 *Clinical Clerkship and Seminars*. 0.120. 3 weeks. Fourth year medical students.

287 *Student Internship*. Elective 0.540. 9 weeks. O.P.D., Hospital wards and seminars.

Introduction to Medicine. See 221-222 in section on "Interdepartmental Teaching".

DEPARTMENT OF OTORHINOLARYNGOLOGY

Chairman: Diab, A.

Professors: Karam, F.; Nassif, R. I.; Salman, S.

Instructor: Barakat, N.

Associates: Abu-Jaudeh, C.; Harboyan, G.

The Department of Otorhinolaryngology offers courses, clerkships and internships to undergraduate students in the School of Medicine and a 4 year residency training program in Otorhinolaryngology.

247 *Lectures on Otorhinolaryngology*. 16.0. Diseases of the ear, nose, throat and larynx and maxillofacial surgery.

267 *Clinical Clerkship*. 120. 3 weeks in the Department. Three mornings a week in O.P.D., all afternoons in the Department, where students attend regular seminars, and take up ward duties assigned to them.

287 *Student Internship*. Elective. 0.540. 9 weeks. Work divided between O.P.D. and Hospital. Responsibility for work-up and general patient care of all ENT cases.

DEPARTMENT OF PATHOLOGY

Chairman: Noltenius, H.

Professors: Azoury, R.; Ghandur-Mnaymneh, L.; Nassar, V.; Rebeiz, J.; Riad, W.; Tomb, J.

The Department of Pathology offers undergraduate courses for medical students and a graduate residency program of 3 years in the specialty of pathology.

229 *General Pathology*. 72.133. Undergraduate teaching of mechanisms of diseases (general pathology) and morphological and pathophysiological aspects of organ diseases (systemic pathology).

Introduction to Medicine. See 221-222 in section on "Interdepartmental Teaching".

Clinical Pathology Conferences. Medicine III, IV, V, and Staff. On autopsy and surgical material.

Pathology Conferences. In collaboration with the Departments of Surgery, Internal Medicine, Pediatrics, Obstetrics and Gynecology, Radiology. Medicine III, IV, V and Staff.

DEPARTMENT OF PEDIATRICS

Chairman: Najjar, S.

Professors: Abu Feisal-Haddad, N.; Asfour, R.; Bitar, J.; Der Kaloustian, V.; Firzli, S.; Ghandur, M.; Idriss, H.; Khazen, A.; Nachman, H.; Nassif, S.; Sinno, A.

Lecturer: Srouji, E.

Instructors: Ariss-Timani, M.; Ayyoub, C.; Dabbous, I.; Wahbeh, N.

Associates: Haddad, P.; Musallam, S.; Sanjad, S.

The Department of Pediatrics offers courses to undergraduate students stressing those aspects of the care of children considered to be important to any physician, including the management of the healthy and sick child, peculiarities of diseases in infancy, childhood and adolescence, nutrition, growth and development, and the importance of combining preventive with curative medicine. Graduate training is offered to physicians leading to specialization in pediatrics (Residency training program). Fellowships in social and preventive pediatrics are available mostly for trained pediatricians.

246 *Clinical Clerkship*. 35.360. 9 weeks. Daily work in the Hospital.

267 *Clinical Clerkship*. 0.320. 8 weeks. Daily work in O.P.D. and rotation in the emergency room and rural clinics.

287 *Student Internship*. 0.780. 13 weeks in the Hospital wards and newborn nursery.

288 *Straight Student Internship*. 0.2880. Fifth year students spend 48 weeks in the Department of Pediatrics of the University Hospital.

Weekly Conferences. Medicine III, IV, and V 44 weeks. Ward Rounds, Pediatric X-ray Conference, Journal Club, Pediatric Grand Rounds, Chairman's Rounds and Specialty Rounds.

DEPARTMENT OF PHARMACOLOGY AND THERAPEUTICS

Chairman: Fawaz, G.

Professor: Simaan, J.

Instructor: Manougian, E.

Research Associate: Fawaz, E.

The field of Pharmacology embraces the knowledge of the history, source, physical and chemical properties, compounding, biochemical and physiological effects, mechanisms of action, absorption, distribution, biotransformation and excretion, and therapeutic and other uses of drugs. The Department of Pharmacology offers undergraduate and graduate programs. The undergraduate program is designed to meet the needs of students of Medicine and is offered during the second semester of the second year. The graduate program consists of a minimum of two years of didactic and practical training leading to the degree of Master of Science.

228 (300) *Pharmacology and Toxicology*. 6.6 ; 9 cr. General course dealing with the effects of drugs on the various biological systems, with emphasis on therapeutic usefulness. A separate section deals with prescription writing and toxicology.

303 and **304** *Pharmacological Methods*. 3 cr each. Methods of animal surgery, bioassay and biochemistry. Prerequisite: Pharmacology 300 and permission.

305 and **306** *Enzymological Bioassays*. 3 cr each. Prerequisite: Biochemistry 211 and permission.

307 and **308** *Tutorial Pharmacology*. 3 cr. each. Introduction to research. Prerequisite: permission.

309 and **310** *Pharmacology Seminar*. 1 cr. Prerequisite: permission.

DEPARTMENT OF PHYSIOLOGY

Chairman: Khuri, R.N.

Professors: Berbari, A. ; Hajjar, J.J. ; Jabbur, S. ; Sha'afi, R.

The Department of Physiology offers three programs of study: (1) Medical Physiology (2) Graduate Physiology (3) Physiology for Pharmacy and Nursing.

The program in medical physiology provides the medical student with a minimum core of physiological knowledge and skills over a period of one academic year.

The graduate program is a broad one leading to the degree of Master of Science. Students with a B.S. degree or its equivalent are eligible. This program includes basic courses in mathematics, biology, physics and chemistry in the Faculty of Arts and Sciences as well as courses in physiology.

The Departments of Physiology and Human Morphology jointly offer a course in human anatomy and physiology to Pharmacy III and Degree Nursing students.

Cardiovascular System. See 202 in section on "Interdepartmental Teaching".

210 *General Physiology and Introductory Biophysics.* 32.16; 2 cr; annually. The course covers some aspects of biomathematics, biostatistics, biomechanics, radioactivity and, specially, membrane transport.

246 *Anatomy-Physiology for Pharmacy III and Degree Nursing Students.* 6 cr; annually. An integrated course in human physiology and anatomy giving the student an elementary knowledge of the gross and microscopic structure of the human body, and an understanding of the mechanisms governing the function of different organs.

305 *Biomedical Electronics.* 32.16; 3 cr; alternate years. An introductory course in electricity and electronics as applied biology and medicine.

311-312 *Advanced Physiology.* 32.0; 2 cr; annually. A guided study (experimental and theoretical) of the literature of the major topics in physiology. Course conducted as a seminar.

313-314 *Physical Methods in Physiological Research.* 2 cr; alternate years. A guided laboratory course in the physical methods used in the major branches of physiology.

Homeostasis. See 200 in section on "Interdepartmental Teaching".

317 *Perspectives in the Physiological Sciences.* 32.0; 2 cr. annually. Selected readings and seminars in the history, philosophy and methodology of the physiological sciences, to give the student a broad view of the field of biology and its implications in everyday life.

Biology of Nerve and Muscle. See 309 in section on "Interdepartmental Teaching".

Nervous System. See 208 in section on "Interdepartmental Teaching".

Metabolism. See 204 in section on "Interdepartmental Teaching".

390 *Directed Reading and Research.* Credit hours variable; annually. Assignments based on the research interests of the graduate student and the advisor, aimed at formulating an original research project.

397-398 *M.S. Thesis.* Credit hours variable. Original research under staff supervision, leading to the M.S. degree.

DEPARTMENT OF RADIOLOGY

Chairman: Melhem, R.

Professors: Balikian, J. ; Issa, P. ; Kabakian, H. ; Kanaan-Atallah, N. ; Rizk, G.

267 Teaching Seminar. 32.0. Weekly seminars are given to small sections of the class in which the various areas of the body are systematically studied.

287 Student Internship. Elective. 2 or 4 months rotation in diagnostic radiology, for interns.

Weekly Conferences. Clinico-Pathological, Medical, Pediatric X-ray, Surgical and Medical Grand Rounds Tumor, Urology.

DEPARTMENT OF SURGERY

Acting Chairman: Dagher, I.

Professors : Abu Jamra, F. ; Anthypas, Ph. ; Azoury, B. ; Bulos, S. ; Dagher, F. ; Haddad, F.S. ; Hemadeh, K. ; Mishalany, H. ; Mnaymneh, W. ; Nassar, S. ; Nsouli, A. ; Obeid, S. ; Shehadeh, S. ; Slim, M. ; Yacoubian, H. ; Yashruti, A.

Instructors: Barakat, N. ; Bikhazi, K. ; Dagher, R. ; Nahra, Kh. ; Najjar, F.

Associates: Abu Zahr, L. ; Bakdash, M. ; Kabbani, M. ; Noujaim, S. ; Pasha, N. ; Rubeiz, M. ; Shu'ayb, W.

267 Clinical Clerkship. 0.480. 12 weeks. One-fourth of the class is assigned in rotation to the Surgical Service. Outpatient and ward duties are combined. The social and economic factors related to the patient's illness are explored and managed in consultation with Social Service and Public Health. Operating room, minor surgery and emergency room assignments are provided. Special rounds and seminars are planned to supplement the clinical activities.

The following subjects are included in the Clinical Clerkship: general surgery; cardiovascular surgery; neurosurgery; orthopedics; plastic and reconstructive surgery; urology; thoracic surgery.

287 Student Internship. 0.540. 9 weeks. Student interns rotate through the Department of Surgery, and initial work-up and general care of inpatients are the major responsibilities of the intern who functions as an integral part of the resident Staff. He is assigned to one or more surgical subspecialties, and performs minor surgical procedures under supervision. His active participation in the various rounds and teaching conferences listed below is a requirement.

288 Elective Internship. 2-4 month elective period may be spent either in the surgical service of affiliated hospitals or with a member of the surgical attending Staff. In affiliated hospitals the duties consist of assisting and participating in the general care of patients. When assigned to one attending, the student intern rounds with him on all patients, assists him in all his surgical procedures and attends his private clinic. A research project is usually assigned to the student intern to be worked up during this elective period.

240 Lecture Series in Surgery. 32.0.

Residency Training. Residency training in the Department of Surgery is recognized by the American Board of Surgery for examination on individual merits of 4th year residents, and also towards the examination of the Royal College of Surgeons.

Weekly Conferences. Cardiovascular, Neurology, Orthopedic Surgery, Pediatric Surgery, Plastic and Reconstructive Surgery, Students Teaching, Surgical Grand

Rounds, Surgical Pathology, Tumor, Urology; Hamlin Chest, Sidon Medico-surgical.

NUTRITION RESEARCH PROGRAM

Director: McLaren, D.

Professors: Awdeh, Z.; Kanawati, A.

301 and **303** are courses for the Interfaculty Nutrition Program. For the M.S. degree in Nutrition, see the special chapter at the end of this catalogue entitled Graduate Study.

301 *Nutritional Biochemistry.* 32.0; 2 cr.

303 *Nutritional Biochemistry.* 0.32; 1 cr.

304 *Community Nutrition.* 32.32; 3 cr.

305 *Nutrition of the Pre-School Child.* 32.32; 3 cr.

306 *Clinical Nutrition and Hospital Dietetics.* 32.32; 3 cr.

PUBLIC HEALTH AND PREVENTIVE MEDICINE COURSES

Coordinator: Azar, J.

Professors: Abou Daoud, K.; Acra, A.; Churchill, C.; Haddad, N.; Harfouche, J.; McLaren, D.

Lecturer: Dajani, S.

Instructor: Zurayk, H.

The following courses in Public Health and Preventive Medicine are taught by Faculty members of the School of Public Health:

AM 204 *Public Health (Medical Care).* An elective course up to a period of four months, available to interns.

AM 206-207 *Social and Preventive Medicine.* See 206-207 in section on "Inter-departmental Teaching".

EB 225 *Medical Statistics.* 1.2; 2 cr.

EB 226 *Epidemiology.* 1.2; 2 cr.

EB 267 *Clerkship in Preventive Medicine and Public Health.* 0.70. 2 weeks.

TH 225 *Medical Parasitology and Mycology.* 2. 3½; 3 cr; first semester. A course offered by faculty members of the Department of Tropical Health. For second year students.

SCHOOL OF PHARMACY

SCHOOL OF PHARMACY

Faculty List 1971-1972

Craig S. Lichtenwalner, M.D., M.P.H.; *Professor of Public Health Practice, Dean of the Faculties of Medical Sciences.*

Amin F. Haddad, M.S., Ph.C.; *Professor of Pharmacy, Director of the School of Pharmacy.*

Raif E. Nassif, M.D., M.P.H.; *Professor of Clinical Pathology, Associate Dean of the Faculties of Medical Sciences.*

Farid Amin Fuleihan, B.B.A.; *Registrar.*

PROFESSORS

* Abou-Chaar, Charles I. - Ph.D. (Pharmacognosy), University of Washington; *Pharmacognosy.*

* Haddad, Amin F. - M.S. (Pharmacy), Philadelphia College of Pharmacy and Science; *Pharmacy.*

ASSOCIATE PROFESSORS

* Dajani, Rashid M.† - Ph.D. (Biochemistry), Wayne State University; *Pharmacy and Pharmaceutical Chemistry.*

* Vorperian, Edward N. - Ph.D. (Pharmaceutical Chemistry), Ohio State University; *Pharmaceutical Chemistry.*

ASSISTANT PROFESSORS

Banna, Nabil R. - Ph.D. (Pharmacology), University of Illinois; *Pharmacology.*

Bikhazi, Anwar B. - Ph.D. (Pharmacy), University of Michigan; *Pharmacy.*

Dakkuri, Adnan A. - Ph.D. (Pharmacy), University of Illinois; *Pharmacy.*

Karamanukian, Levon M. - M.S. (Biology), American University of Beirut; *Pharmacognosy.*

Saheb, Souheil E. - Ph.D. (Pharmaceutical Chemistry), University of Kansas; *Pharmaceutical Chemistry.*

LECTURER

Kebabjian, Kevork - M.B.A., American University of Beirut; *Pharmacy Administration.*

INSTRUCTOR

Apkarian, Yeranouhi K. - M.S. (Pharmacy), American University of Beirut; *Pharmacy and Pharmaceutical Chemistry.*

* On Tenure Appointment.

† On Furlough or Leave.

ASSISTANT INSTRUCTOR

Nassar, Tamer K. - *Human Morphology - Histology Laboratory.*

RESEARCH ASSISTANTS

Jeha, Linda - B.S. Pharmacy, University of Alexandria.

Nercessian, Sossi - S.B. in Pharmacy, American University of Beirut.

Shamlan, Sonia, - B.S. in Pharmacy, American University of Beirut.

MEMBERS OF OTHER DEPARTMENTS OF THE UNIVERSITY TEACHING WITH THE ASSISTANCE OF THEIR STAFF IN THE SCHOOL OF PHARMACY
(for ranks see respective Faculty lists)

Faculty of Arts and Sciences

Billeh, Victor - Ph.D.; *General Biology.*

Butros, Joseph - Ph.D.; *General Biology.*

Cook, Robert - Ph.D.; *Organic Chemistry.*

McClain, John - Ph.D.; *General Physics.*

Olmsted, John - Ph.D.; *Chemical Principles.*

Slade, Landry - Ph.D.; *Chemical Principles.*

Tang, Ming I. - Ph.D.; *General Physics.*

Zurayk, Ilham - Ph.D.; *General Physics.*

School of Medicine

Birbari, Adel - M.D.; *Physiology.*

Durr, Ibrahim - Ph.D.; *Biochemistry.*

Garabedian, Garabed - Ph.D.; *Medical Microbiology.*

Hajjar, Jean J. - M.D.; *Physiology.*

Jabbur, Suhayl - M.D., Ph.D.; *Physiology.*

al-Khalidi, Usama - Ph.D.; *Biochemistry.*

Khoury, Raja - M.D.; *Physiology.*

Malakian, Artin - Ph.D.; *Medical Microbiology.*

Matossian, Robert - M.D.; *Medical Microbiology.*

Wakid, Nabil - Ph.D.; *Biochemistry.*

School of Public Health

Dajani, Said - M.D.; *Public Health.*

Edeson, John - M.D., D.P.H., *Parasitology.*

Frayha, George - Ph.D.; *Parasitology.*

Mourad, Sah'l - M.D.; *Parasitology.*

Stephen, Lorne - D.V.M.; *Parasitology.*

Sweatman, Gordon - Ph.D.; *Parasitology.*

General Information

Objective

In planning its curriculum, the School of Pharmacy, established in 1871, aims at giving the student a thorough professional training as well as a basic scientific education which will develop in him the ability to practice his profession in accordance with the highest possible standards and the generally accepted code of ethics, and to assume the responsibilities of citizenship befitting a professional man. Through student-teacher contacts, in class and laboratory, and through student-directed extracurricular activities, the student is given the opportunity to develop and demonstrate the eagerness for learning, the spirit of cooperation with his fellow men, integrity, devotion to duty, unselfishness in service and other moral traits so essential in a citizen who is to serve his community.

Students' Activities

In addition to participating in general university activities, the students of the School of Pharmacy have their own professional society, the Pharmacy Students Society, and participate in the publication of *Campus*, the University yearbook.

Degrees Awarded

The School of Pharmacy offers two programs of study. The four year program, leading to the degree of Bachelor of Science in Pharmacy, is taken following the completion of the Freshman Science class of the Faculty of Arts and Sciences of this University or an equivalent program. In addition to the academic program, students complete during the summer vacations nine months of practical experience in an approved pharmacy. The second program, leading to the Master of Science degree, is offered to qualified candidates who are holders of pharmacy degrees from recognized institutions.

The School of Pharmacy is subject to the regulations of the Board of Regents of the State of New York where the University is incorporated. Graduates of the School are also qualified for licensure in the various Middle and Near Eastern Countries.

ADMISSION

For complete and detailed information regarding admission to the University, including certificates recognized, see pages 17 to 27 in the section on Admissions at the beginning of the catalogue.

Lebanese students are required to submit the Lebanese Baccalaureate, Part II, or its equivalent before admission to the School of Pharmacy.

The specific requirements for admission directly to First Year Pharmacy are found on pages 23 to 24, and to Graduate Work in the section on Admission in the special chapter at the end of this catalogue entitled Graduate Study.

Students exempted from courses successfully completed before admission must take substitute courses from a list of approved electives available at the Director's Office. Such students cannot take less than 12 credit hours per semester.

GRADUATION REQUIREMENTS

To be eligible for the degree of Bachelor of Science in Pharmacy, a student must: complete satisfactorily the basic curriculum of the School of Pharmacy with a

minimum of 140 semester credit hours over and above the completion of 30 semester credit hours in the Freshman Science class of the Faculty of Arts and Sciences, or an equivalent program; attain an average considered satisfactory by the School; and complete nine months of practical experience in an approved pharmacy. (See section below on Practical Experience). The degree is granted with *distinction* to students who complete the program with an average of 85 or above, who incur no academic delinquencies, who complete at least three years in residence at the School of Pharmacy of this University and who are recommended by the Faculty of the School.

(For requirements for the degree of Master of Science in Pharmacy, see section below on Graduate Study).

REGISTRATION

Students of the first, second, and third years take practical experience during the summer and are registered on a 12 months basis which includes one month of vacation. The first nine months of this period (October to June) constitute the academic part of the course during which they take the curriculum outlined below. During the remaining three months (July to September) students complete the required period of practical experience (12 weeks) for that year.

Students of the fourth year are registered as students in the School of Pharmacy for the duration of the academic year only (October to June) during which they take the academic curriculum outlined below.

ACADEMIC RULES AND REGULATIONS

Attendance

Regular attendance is required at lectures, recitations, and laboratories. A student's absence from more than one third of the scheduled semester hours for a course will be considered by the appropriate Committee which decides on the measures to be taken.

Students may not absent themselves from announced examinations and quizzes unless excused by the Director's Office. If a student is absent on the day an announced quiz or examination is held, and can present a valid excuse, he will be allowed, subject to the discretion of the Department, to take a make-up examination. If no make-up examination is given, the quiz shall be ignored when determining the final grade for the course. If the student does not present a valid excuse, he will not be allowed a make-up examination and will receive a grade of zero for the quiz.

No student may be excused from laboratory requirements. All missed laboratory work must be made up by arrangement with the responsible professor.

Students taking courses in the Faculty of Arts and Sciences are required to follow the attendance and absence regulations of that Faculty.

Examinations

Final examinations are given at the end of each semester. In addition to these examinations, the teachers having charge of the respective courses hold quizzes during the semester to determine proficiency. These quizzes constitute a part of the student's rating reported to the Registrar.

Grades and Promotion

In the School of Pharmacy the following grading system is used : 90-100 Excellent ; 80-89 Good ; 70-79 Fair ; 60-69 Weak ; below 60 Failing.

For promotion to the next higher class the student must pass all courses and must attain a general average of 65 for first year and 70 for second, third and fourth years.

A student passing in all courses with a yearly average below that required for promotion will be asked to repeat the year. A student repeating a year is required to attain a minimum general average of 70 for the first year, and 75 for second, third and fourth years, and to take a minimum of 12 credit hours per semester.

A student repeating a year may be exempted from courses in which he attained a grade of 75 or above, and must take substitute courses up to a total minimum of 12 credit hours per semester, chosen from a list of approved electives available at the Director's Office.

To be placed on the Dean's Honor List a student must : (a) have a minimum grade average of 80 ; (b) stand in the upper 15 % of his class ; (c) have no failure ; (d) have no special condition for promotion ; (e) not be repeating ; (f) be taking courses equal to at least five-sixths of the credit hours of his class ; (g) have no disciplinary action against him ; and (h) be deemed worthy by the Director to be on the Honor List.

Failures and Deficiencies

Students failing courses taken in the School of Arts and Sciences during the academic year will be required to repeat these courses.

Failure and deficiencies in courses taken in the Schools of Pharmacy, Medicine, and Public Health can be made up by re-examination provided the student meets the promotion standards for his class. These examinations are given at the end of the summer for all classes except fourth year students who are allowed to take them in June before graduation. No make-up examination is allowed if the failing grade is below 50, in which case the student will have to repeat the year.

A student failing a repeated course, failing to attain the required average at the end of the second semester, failing a summer course, or failing a course make-up examination is required to repeat the year.

Students repeating a year will be required to repeat all courses in which they have a grade below 75.

A student failing a course at the end of the first semester will be warned. A student failing in 12 credit hours at the end of the first semester, failing in 12 cumulative credit hours at the end of the second semester or at the end of the summer session, or failing to meet promotion or graduation standard after repeating a year will be dropped.

PRACTICAL EXPERIENCE

In addition to completing the academic requirements, students must also complete, before graduation, nine months (36 weeks of 30 hours each) of practical experience in an approved pharmacy.

A list of pharmacies in Lebanon approved for practical experience is available from the Director of the School of Pharmacy.

The practical experience is completed during the summer vacations. No exceptions will be permitted except by prior approval of the Faculty. Before June 1 each student must submit to the Director a special certificate form supplied by the School and completed as required, indicating the name and address of the pharmacy in which he has been accepted to practice during the summer of the current year. No change of pharmacy will be allowed except by special authorization of the Director.

During their practical experience students must keep a record of their work according to the instructions given by the School. The record books and certificates of completed practice must be submitted to the Director of the School at the time of registration and will be subject to the approval of the appropriate Committee. Students who do not present certificates of practice and books at the time of registration will not be given credit for practical experience taken during that period.

Students taking practical experience during the summer may make up for their failures or deficiencies by taking courses during the summer session up to a maximum of 5 credit hours, provided prior approval of the Director is obtained and provided they are able to complete a minimum of 30 hours of practical experience each week.

GRADUATE STUDY

The M.S. in Pharmacy is a professional and scientific qualification, and therefore involves both the acquisition of a number of skills and the development of an explicit and disciplined awareness of a number of scholarly and critical problems. The M.S. program should provide an opportunity for thought, wide reading and experimental research, so that the student may devote himself to the study of his choice selected from the four major areas of specialization, namely, pharmacy, pharmaceutical chemistry, pharmacognosy and pharmacodynamics. The program of each student, planned by his advisor and the supervisory Committee, must include a minimum number of course credits and a thesis. General requirements for graduate study are found in the special chapter at the end of this catalogue entitled Graduate Study.

Curriculum

	Lect. and Rec. Hours per Week		Laboratory Hours per Week		Semester Credit Hours
	Sem. I ³	Sem. II ³	Sem. I ³	Sem. II ³	
Freshman Science¹ (School of Arts and Sciences)					
Arabic 101 and 102 ⁴	3	3	—	—	6
English 103 and 104, or 105 and 106	3	3	2	2	8
Chemistry 101 and 201	3	3	3	4	9
Mathematics 101 and 102	3	4	—	—	7
Phys. Educ. 001 and 002, or 003 and 004	—	—	2	2	—
	<u>13</u>	<u>13</u>	<u>7</u>	<u>8</u>	<u>30</u>
First Year²					
Biology 201 General Biology ⁵	3	—	3	—	4
Biology 202 General Biology ⁵	—	3	—	3	4
Chemistry 201 Chemical Principles I ⁵	3	—	4	—	5
Chemistry 202 Chemical Principles II ⁵	—	3	—	4	5
Pharmacy 205 Pharmacy Orientation	1	—	—	—	1
Pharmacy 207 Introduction to Physical Pharmacy	3	—	—	—	3
Physics 103 General Physics I ⁵	3	—	3	—	4
Physics 204 General Physics II ⁵	—	3	—	3	4
Elective	—	3	—	—	3
	<u>13</u>	<u>12</u>	<u>10</u>	<u>10</u>	<u>33</u>
Total	13	12	10	10	33
Second Year²					
Chemistry 211 Organic Chemistry I ⁵	3	—	—	—	3
Chemistry 212 Organic Chemistry II ⁵	—	3	—	—	3
Chemistry 213 Organic Chemistry Lab.	—	1	—	8	4
Pharm. Chem. 225 Inorg. Pharm. Chem.	—	2	—	—	2
Pharm. Chem. 227 Pharm. Analysis I	3	—	6	—	6
Pharmacy 225 Processes & Preparations	3	—	4	—	5
Pharmacy 227 Physical Pharmacy I	4	—	—	—	4
Pharmacy 228 Physical Pharmacy II	—	4	—	—	4
Pharmacy 230 Pharm. Administration	—	3	—	—	3
	<u>13</u>	<u>13</u>	<u>10</u>	<u>8</u>	<u>34</u>
Total	13	13	10	8	34

1. For description of courses see Faculty of Arts and Sciences catalogue.

2. Students of first, second and third years must also complete during the summer 12 weeks of practical experience in an approved pharmacy. (See section on Practical Experience).

3. Sixteen weeks constitute one semester.

4. Non-Arabic speaking students take an elective instead of Arabic.

5. An elective is chosen instead if the student has taken the course or its equivalent previously and has been exempted from it by the advisor. A list of approved electives is available at the Director's Office.

	Leo. and Rec. Hours per Week		Laboratory Hours per Week		Semester Credit Hours
	Sem. I ²	Sem. II ²	Sem. I ²	Sem. II ²	
Third Year ¹					
Bacteriology 248 Medical Microbiology	—	3	—	4	5
Biochemistry 211 Basic Biochemistry	4	—	3	—	5
Pharm. Chem. 248 Pharmaceutical Analysis II	—	3	—	4	5
Pharmacognosy 245 Pharmacognosy I ³	3	—	7	—	6
Pharmacognosy 246 Pharmacognosy II ³	—	3	—	4	4
Pharmacy 242 Biopharmaceutics	—	3	—	—	3
Physiology 246 Anatomy-Physiology	4	—	5	—	6
	<u>11</u>	<u>12</u>	<u>15</u>	<u>12</u>	<u>35</u>

Fourth Year

Pharm. Chem. 261 Organic Medicinal & Pharm. Chem. I	2	—	—	—	2
Pharm. Chem. 262 Organic Medicinal & Pharm. Chem. II	—	2	—	—	2
Pharmacognosy 245 Pharmacognosy I ³	3	—	7	—	6
Pharmacognosy 246 Pharmacognosy II ³	—	3	—	4	5
Pharmacognosy 248 Pesticides	—	1	—	—	1
Pharmacology 267 Pharmacodynamics	3	—	3	—	4
Pharmacology 268 Pharmacodynamics & Toxicology	—	3	—	—	3
Pharmacology 279 Emergency Medical Care	—	1	—	—	1
Pharmacy 271 Dispensing Pharm. I	4	—	4	—	5
Pharmacy 272 Dispensing Pharm. II	—	4	—	4	5
Pub. Health PHA 310 Public Health	—	1	—	—	1
Trop. Health TH 201 Parasitology	—	3	—	2	4
	<u>12</u>	<u>18</u>	<u>14</u>	<u>10</u>	<u>39</u>

Courses

Numbers Preceding Course Titles

1. Courses taught in the School of Pharmacy in the areas of pharmacy, pharmaceutical chemistry, pharmacognosy, and pharmacology are numbered as follows: First year courses 200 - 219; Second year courses 220 - 239; Third year courses 240 - 259; and Fourth year courses 260 - 279. Graduate courses are numbered from 300 to 399. Numbers ending with odd figures designate courses normally given in the first semester and those ending with even figures designate courses normally given in the second semester.

-
1. Students of first, second and third years must also complete during the summer 12 weeks of practical experience in an approved pharmacy. (See section on Practical Experience).
 2. Sixteen weeks constitute one semester.
 3. Pharmacognosy I and II Lectures are given in both third and fourth year in 1971-72, but the Laboratory is given in fourth year only. Fourth year took the Laboratory in 1970-71 and receives credit for it in 1971-72.

2. Courses taught in the Faculty of Arts and Sciences, and the School of Medicine and Public Health are numbered according to the systems used by the respective Schools.

Numbers Following Course Titles

The first number following the title of course indicates the number of lecture and discussion hours given each week.

The second number indicates the laboratory hours required each week.

The third number indicates the semester credit hours for the course. Each hour of laboratory is considered 1/4 to 1/2 credit hour.

Course Descriptions

Detailed course descriptions are available for those requiring further information.

DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

225 *Inorganic Pharmaceutical Chemistry*. 2.0; 2 cr; second semester. Chemical study of certain inorganic compounds of known value in therapy.

227 *Pharmaceutical Analysis I*. 3.6; 6 cr; first semester. Type procedures used in the assay of pharmacopeial products. Emphasis on instrumental methods and modern techniques.

248 *Pharmaceutical Analysis II*. 3.4; 5 cr; second semester. Continuation of 227 which is prerequisite.

261 *Organic Medicinal and Pharmaceutical Chemistry I*. 2.0; 2 cr; first semester. Chemical study of certain groups of drugs with emphasis on synthesis and structure activity relationship.

262 *Organic Medicinal and Pharmaceutical Chemistry II*. 2.0; 2 cr; second semester. Continuation of part I. Both parts I and II of this course do *not* include the chemotherapeutic agents and the biological products of pharmaceutical interest.

270 *Chemotherapy*. 3.0; 3 cr; second semester. Study of chemotherapeutic agents such as anti-infectives, anti-parasitics, anti-neoplastic agents, antibiotics, etc. Not offered during 1971-72.

311 *Advanced Organic Pharmaceutical Chemistry*. 3.0; 3 cr; first semester. Factors that affect the administered drug before, during and after it reaches the site of action are stressed. Model organic reactions that have a parallel in biological systems are reviewed.

314 *Selected Topics in Pharmaceutical Chemistry*. 3.0; 3 cr; second semester. Advanced study of current problems dealing with the synthesis and mechanism of action of compounds of medicinal value.

322 *Enzymology*, 2.4; 4 cr; first semester. Introductory course in enzymology.

326 *Pharmaceutical Quality Control I*. 2.6; 5 cr; first semester. Quality control of pharmaceuticals as practiced in pharmaceutical manufacturing and drug control laboratories.

327 *Pharmaceutical Quality Control II*. 2.6; 5 cr; second semester. Continuation of 326 which is prerequisite.

333 and **334** *Seminar*. 1.0; 1 cr; two semesters.

399 *M.S. Thesis*.

DEPARTMENT OF PHARMACOGNOSY

- 245** *Pharmacognosy I.* 3.7; 6 cr; first semester. Drugs of natural origin, especially those containing alkaloids and glycosides.
- 246** *Pharmacognosy II.* 3.4; 5 cr; second semester. Drugs of natural origin including fermentation products and other drugs not included in 245.
- 248** *Pesticides.* 1.0; 1 cr; second semester. Household pesticides.
- 312** *Economic Pharmacognosy.* 1.6; 4 cr; first semester. Microscopic and chemical analysis of drugs of natural origin.
- 317** *Tutorial in Chemotaxonomy.* 1.6; 4 cr; second semester.
- 322** *Literature of Pharmacognosy.* 1.0; 1 cr; first semester.
- 326** *Biosynthesis of Plant Constituents.* 4.0; 4 cr; second semester. Biosynthesis of secondary products of plant metabolism.
- 333** and **334** *Seminar.* 1.0; 1 cr; two semesters.
- 399** *M.S. Thesis.*

DEPARTMENT OF PHARMACOLOGY

- 267** *Pharmacodynamics.* 3.3; 4 cr; first semester. Absorption, fate, mechanism action and biochemical and physiological effects of drugs. Biological assays whenever applicable are discussed.
- 268** *Pharmacodynamics and Toxicology.* 3.0; 3 cr; second semester. Continuation of 267. The principles of toxicology are also discussed.
- 279** *Emergency Medical Care.* 1.0; 1 cr; second semester.
- 333** and **334** *Seminar.* 1.0; 1 cr; two semesters.
- 399** *M.S. Thesis.*

DEPARTMENT OF PHARMACY

- 205** *Pharmacy Orientation.* 1.0; 1 cr; first semester. Introduction to the profession.
- 207** *Introduction to Physical Pharmacy.* 3.0; 3 cr; first semester. Review of the basic mathematical operations and their application to physical pharmacy.
- 225** *Pharmaceutical Processes and Preparations.* 3.4; 5 cr; first semester. Basic physico-chemical principles as applied to pharmaceutical processes and preparations.
- 227** *Physical Pharmacy I.* 4.0; 4 cr; first semester. Fundamental concepts of physical chemistry applied to pharmaceutical systems.
- 228** *Physical Pharmacy II.* 4.0; 4 cr; second semester. Continuation of 227.
- 230** *Pharmacy Administration.* 3.0; 3 cr; second semester. Introduction to the essentials of management, marketing, human relations with personnel administration, finance, banking, accounting and business laws.
- 242** *Biopharmaceutics.* 3.0; 3 cr; second semester. The relationship between the physiochemical properties of dosage forms and their biological availability.
- 270** *Biological Products.* 3.0; 3 cr; second semester. Vitamins, hormones, amino acids, sera, vaccines, enzymes, and proteins of therapeutic use. Not offered during 1971-72.

271 *Dispensing Pharmacy I.* 4.4; 5 cr; first semester. Dosage forms in which medications may be administered.

272 *Dispensing Pharmacy II.* 4.4; 5 cr; second semester. Continuation of 271 which is prerequisite. Incompatibilities, drug stability and pharmacy laws.

307 *Selected Topics in Tablet Manufacturing.* 3.2; 4 cr; first semester.

308 *Parenteral Products.* 3.0; 3 cr; first semester.

311 *Selected Topics in Pharmacy.* 3.0; 3 cr; first semester. Principles and processes of pharmacy as applied to the manufacturing of dosage forms excluding topics covered in 307 and 308.

315 *Biopharmaceutics and Pharmacokinetics.* 3.0; 3 cr; second semester. Biological and physico-chemical factors related to the biological availability and the fate of drugs and their dosage forms.

333 and **334** *Seminar.* 1.0; 1 cr; two semesters.

399 *M.S. Thesis.*

COURSES TAUGHT IN OTHER FACULTIES AND SCHOOLS

FACULTY OF ARTS AND SCIENCES

Biology **201** and **202** *General Biology.* 3.3; 4 cr; two semesters.

Chemistry **201** *Chemical Principles I.* 3.4; 5 cr; first semester.

Chemistry **202** *Chemical Principles II.* 3.4; 5 cr; second semester.

Chemistry **211** *Organic Chemistry I.* 3.0; 3 cr; first semester.

Chemistry **212** *Organic Chemistry II.* 3.0; 3 cr; second semester.

Chemistry **213** *Organic Chemistry Laboratory.* 1.8; 4 cr; second semester.

Physics **103** *General Physics I.* 3.3; 4 cr; first semester.

Physics **204** *General Physics II.* 3.3; 4 cr; second semester.

SCHOOL OF MEDICINE

Bacteriology **248** *Medical Microbiology.* 3.4; 5 cr; second semester.

Biochemistry **211 (300)** *Basic Biochemistry.* 4.8.64; 5 cr; first semester.

Biochemistry **248** *Biochemistry of Body Fluids and Tissues.* 1.3; 2 cr; second semester.

Physiology **246** *Anatomy-Physiology for Pharmacy III Students.* 4.5; 6 cr; first semester.

SCHOOL OF PUBLIC HEALTH

PHA **310** *Public Health.* 1.0; 1 cr; second semester.

TH **204** *Parasitology.* 3.2; 4 cr; second semester.

SCHOOL OF NURSING

SCHOOL OF NURSING

Faculty List 1971-1972

Craig S. Lichtenwalner, M.D., M.P.H.; *Professor of Public Health Practice, Dean of the Faculties of Medical Sciences.*

Esther L. Moyer, B.S.N.E., M.A.; *Associate Professor of Nursing, Director of the School of Nursing.*

Raif E. Nassif, M.D., M.P.H.; *Professor of Clinical Pathology, Associate Dean of the Faculties of Medical Sciences.*

Farid A. Fuleihan, B.B.A.; *Registrar.*

ASSOCIATE PROFESSORS

Mallory, Cynthia - M.A., Curriculum in Nursing, Teacher's College, Columbia University; *Nursing (Visiting).*

Moyer, Esther L. - B.S.N.E., M.A., Teacher's College, Columbia University; *Nursing.*

Shaya, Wadad - M.S.N.E., Syracuse University; *Nursing.*

ASSISTANT PROFESSORS

Khalaf, Wadad - M.S. in Nursing, Boston University School of Nursing; *Medical-Surgical Nursing.*

Sayegh, Juliette + - M.S. in Nursing, Boston University School of Nursing; *Maternal-Child Nursing.*

Yamine, Lorena - B.S., University of Kansas; *Maternal-Child Nursing.*

INSTRUCTORS

Balian, Sossi - B.S. in Nursing, American University of Beirut; *Maternal-Child Nursing.*

Gedah, Khanum - B.S. in Nursing, American University of Beirut; *Mental Health and Psychiatric Nursing.*

Hashim, Nihad - B.S. in Nursing, American University of Beirut; *Fundamentals of Nursing.*

Howell, Margie - M.S. in Psychiatric Nursing, Catholic University of America; *Mental Health and Psychiatric Nursing.*

Makarem, Salwa - M.S. in Nursing, Boston University School of Nursing; *Medical-Surgical Nursing.*

Panjarjian, Anahid - B.S. in Nursing, American University of Beirut; *Post-Basic Program in Administration and Teaching of Nursing.*

ASSISTANT INSTRUCTORS

Ayvazian, Elizabeth - A.B., Haigazian College, Beirut; Nursing Diploma, American University of Beirut; *Medical-Surgical Nursing.*

+ On Furlough or Leave.

- Bakkalian, Mary - B.S. in Nursing, American University of Beirut; *Maternal-Child Nursing*.
- Balmanoukian, Shaké - B.S. in Nursing, American University of Beirut; *Medical-Surgical Nursing*.
- Beyhum, Falak - B.A., American University of Beirut; *Recruitment Counselor Company*, Carol - B.S. in Nursing, University of Texas; *Fundamentals of Nursing*.
- Deeb Zanoyan, Hera + - B.S. in Nursing, American University of Beirut; *Medical-Surgical Nursing*.
- Sadakian, Rosalie - B.S. in Nursing, American University of Beirut; *Medical-Surgical Nursing*.
- Shnorhokian, Arpi - B.S. in Nursing, American University of Beirut; *Medical-Surgical Nursing*.
- Zacca, Elizabeth - B.S. in Nursing, Montana State University; *Medical - Surgical Nursing*.

AD HOC LECTURERS - PART-TIME

- Attiyeh, Morris - M.D., American University of Beirut; *Physiology*.
- Eid, Bassimah - M.A., American University of Beirut; *Sociology*.
- Kan'an, Munir - M.D., American University of Beirut; *Pharmacology and Therapeutics*.
- Kanafani, Uthman - Ph.C., American University of Beirut; *Chemistry*.
- Lanson, Marion - M.A. American University of Beirut; *English*.
- Puzantian, Vahé - M.D., American University of Beirut; *Psychiatry*.
- Lichtenwalner, Phyllis - B.A., Beirut College for Women; *Psychology*.

MEMBERS OF OTHER DEPARTMENTS OF THE UNIVERSITY TEACHING WITH THE ASSISTANCE OF THEIR STAFF IN THE SCHOOL OF NURSING

(for ranks see respective Faculty lists)

- Abou-Daoud, Kamal T. - M.D.; *Epidemiology*.
- Bickers, William M. - M.D. ; *Obstetrics and Gynecology*.
- Churchill, Charles - Ph.D.; *Biostatistics*.
- Diab, Alfred - M.D. ; *Otorhinolaryngology*.
- Garabedian, Garabed - M.D.; *Bacteriology and Virology*.
- Hajjar, Jean - M.D.; *Physiology*.
- Imad, Azmi - M.Sc. ; *Physics*.
- Manougian, Antranig - M.D.; *Psychiatry*.
- Matta, Samir S. - M.D. ; *Ophthalmology*.
- Nabbut, Nassim - M.D.; *Microbiology*.
- Najemy, Robert E. - M.S.W. ; *Social Work*.

+ On Furlough or Leave.

Najjar, Samir S. - M.D.; *Pediatrics*.

Nucho, Charles N. - M.D.; *Tuberculosis*.

Tabbara, Riad A. - M.D.; *Medicine*.

Tarabulsi, Abdul-Sattar - *Physical Education for Men*.

Verhoestraete, Louis - M.D., M.P.H.; *Public Health*.

General Information

The School of Nursing, founded in 1905, was one of the first organized nursing schools in the Middle East. The five year Bachelor of Science in Nursing program established in 1936 was replaced October, 1964, with a four year program leading to the Bachelor of Science in Nursing degree. A post basic program in Administration and Teaching of Nursing has been offered since 1952.

The School of Nursing is one of the four schools in the Faculties of Medical Sciences. As a member of the University, the School is committed to the philosophy and purpose of the American University of Beirut: "To educate men and women for creative, responsible lives in their own communities— not only professionally competent, but who also have breadth of vision, a sense of civic and moral responsibility, and devotion to the fundamental values of life".

The School of Nursing is on the list of schools approved by the Board of Nurse Examiners, State Education Department, New York University Board of Regents as well as by the Ministry of Education, Republic of Lebanon. Graduates of the diploma and degree programs are qualified for the licensing examination in Lebanon and in other countries having legislation for the licensure of professional nurses, and are licensed in New York State without examination.

The Faculty believe that the School exists for the education of the student, and that the Faculty is directly responsible for providing the opportunities for learning which will develop an individual who is effective in his or her personal, professional, social and civic life, both as a student and as a graduate nurse. We believe that nursing is a dynamic relationship with persons needing preventive, curative and rehabilitative services. This nurse-patient relationship is based upon utilization of principles from the natural, behavioral, medical and nursing sciences. It involves the ability of the nurse to identify needs, plan and give nursing care to individuals, independently and/or cooperatively, as a member of the health team.

The School utilizes the libraries and general educational and cultural facilities of the University. Clinical resources used in learning the nursing care of adults and children include the 440 bed hospital and out-patient clinics of the American University of Beirut Hospital, the health centers operated by the School of Public Health and the Municipality of Beirut, the Government Hospital of Sidon, the Lebanon Hospital for Mental and Nervous Disorders, the Hamlin Hospital for Chest Diseases, and other health agencies.

Students whose homes are in Beirut live with their families; other students live in University residences on campus or in University approved housing off campus. For specific information on student affairs, including housing, food service, health service, and University recreational and social programs, see the chapter on Student Life in this catalogue. Information on fees appears in the chapter on Fees, and a Fee List (available on request) provides information on students' purchase of uniforms and other School supplies.

Students participate in all University activities, and all Nursing students are members of the Nursing Students' Society.

ADMISSION

For complete and detailed information regarding admission to the University, including certificates recognized, see pages 17 to 27 in the chapter on Admissions at the beginning of this catalogue.

1. Diploma Program in Nursing

The specific requirements for admission to first year of the Diploma Program in Nursing are found on page 26 of this catalogue. Lebanese students are required to meet the Lebanese Government requirements for admission to Nursing.

Graduates of this program are prepared for beginning staff nurse positions in hospitals and out-patient clinics. Study of preventive, curative, and rehabilitative aspects of nursing throughout the curriculum in hospitals, clinics, health centers, home visiting and health agencies provides the graduate with beginning skills to practice nursing in countries of the Middle East and elsewhere. The program aims to prepare young women and men with interests, attitudes and appreciations which will enable them to lead wholesome personal lives, realize the maximum potentialities through intellectual, social and personal growth, and contribute effectively as nurses and citizens in their communities.

2. Bachelor of Science in Nursing Program

The specific requirements for admission to first year are found on pages 19 to 23 and to second year on pages 23 to 24 of this catalogue. Individuals holding Arts qualifications are required to pass the AUB Entrance Examinations in science, English and mathematics to qualify for admission. The science examination for admission to second year is Biology.

The program consists of four academic years and three summer sessions for those admitted to first year and three academic years and two summer sessions for those admitted to second year.

Graduates of this program will be able to perform nursing functions at a professional level of competence. After staff nursing experience, a graduate will be able to assume a leadership role in planning, providing, directing and evaluating nursing care, as well as contributing to the development of health services in cooperation with other members of the health team. Individuals with special aptitude will be able to function as assistant teachers or supervisors after staff nurse experience and further in-service education. In addition to professional competence, graduates will possess ability to meet the responsibilities of professional people in their personal, professional and civic roles. It is expected that a large number of graduates will pursue advanced studies, specializing in various clinical fields, in teaching, administration and research. Therefore, this program provides the foundation for graduate education.

Graduates of diploma programs in nursing enter the Bachelor of Science in Nursing program by matriculating in the same manner as other students. The graduate nurse may take written and practical examinations on selected nursing or nutrition courses offered early in the Bachelor of Science in Nursing program and, if successful, will be granted exemption credit. Further information on these validating (or challenging) examinations will be furnished on request. Part time study may be pursued, but failure to complete requirements within seven years will result in a re-evaluation of credits and possible loss of credit.

3. Post Basic Program in Administration and Teaching of Nursing

This program is designed for graduates of diploma programs in nursing who desire preparation for positions in supervision, junior level of teaching or administration of a hospital nursing service.

The program of studies is planned to strengthen the student's knowledge and abilities in the preventive, curative and rehabilitative aspects of nursing, with emphasis on medical-surgical nursing, maternal-child nursing, or mental health and psychiatric nursing. In addition, courses in teaching, supervision and curriculum with related supervised practice are planned to prepare the graduate nurse for a beginning position in either teaching or supervision.

The program consists of two academic semesters and a summer session. Students are admitted each October.

Students lacking proficiency in English as determined by the American University of Beirut English Entrance Examination will be required to take either the summer University Orientation Program (August and September) or the full year University Orientation Program.

The applicant must submit evidence of graduation from an approved school of nursing together with references attesting to character and to aptitude for successful completion of the program. At least one year of successful staff nursing experience in a hospital or health agency is prerequisite. Proficiency in reading, writing and understanding technical and scientific materials in English is essential. Applications should be filed and the English Entrance Examination taken in accordance with dates shown in the University calendar, or the TOEFL (Test of English as a Foreign Language) examination should be taken by March prior to the October in which admission is planned.

GRADUATION REQUIREMENTS

To be eligible for graduation a student in the Nursing Diploma and Bachelor of Science in Nursing programs must complete satisfactorily the curriculum of the program, attain an average of 70 and be recommended by the Faculty.

Students who have completed their educational program with an average of 85 or above, and who are recommended by the Faculty of the School of Nursing and the Faculties of Medical Sciences, are awarded their diploma or degree *with distinction*.

Students in the Post Basic program are awarded a certificate upon satisfactory completion of the program. To be eligible for the certificate a student must have a minimum grade of 60 in each course, and be recommended by the Faculty.

REQUIREMENT FOR EMPLOYMENT AFTER GRADUATION

A year of work experience at the American University of Beirut Hospital is required following graduation of all students in the Nursing Diploma program. During this year the graduate is employed as a staff nurse and receives the same salary as all other staff nurses who begin employment at the American University of Beirut Hospital. This year is in recognition of the education provided by the University. Students who live in a University residence for one academic year during the first two years of the program are obligated for an additional year of employment.

ACADEMIC RULES AND REGULATIONS

In the School of Nursing the following grading system is used: 90-100 Excellent; 80-89 Good; 70-79 Fair; 60-69 Weak; below 60 Failing.

Promotion is based upon academic attainment, ability in applying knowledge to nursing situations and evidence of a high level of personal responsibility. A grade of at least 60 is required in all courses except clinical nursing courses and the second course in English. In these courses a grade of 70 is required. The Faculty reserves the right to request the withdrawal of any student who in their judgement fails to show evidence of desirable levels of achievement.

For promotion to the next higher class, students in the *Degree program* must pass all courses and must attain a general average of at least 65 for the first year in the program and 70 for subsequent years. For promotion to next higher class, students in the *Diploma program* must pass all courses and must attain a general average of at least 70. Upon Faculty action, a student may be allowed to remain in the School on probation or to repeat a semester or year of study. Probation must be removed prior to the last semester in the School, and in most cases removal will be required prior to beginning the senior year.

To be placed on the Dean's Honor List, a student must: (1) have a minimum grade average of 80; (2) rank in the upper 10% of her class; and (3) have no failures or course repetitions in the current semester.

Curricula

DIPLOMA PROGRAM IN NURSING

First Year

	Lect. Hours per Week	Lab. ² Hours per Week	Semester Credit Hours
<i>First Semester</i>			
Anat. 101 Anatomy and Physiology	3	2	4
Arab. 117 Arabic ¹	1	—	—
Chem. 117 Chemistry	3	2	3
Eng. 117 English	3	—	3
Nurs. 101 Orientation	1½	—	—
Nurs. 105 Fundamentals of Nursing	5	1	5
Nutr. 101 Nutrition	2	1	2
Phys. Educ. 001 or 003 Athletics for Men or Women	—	2	—
			17
<i>Second Semester</i>			
Anat. 102 Anatomy and Physiology	3	2	4
Arab. 118 Arabic ¹	1	—	—
Bact. 102 Microbiology for Nursing	2	2	3
Nurs. 106 Fundamentals of Nursing	4	3	7
Nurs. 110 Interpersonal Relationships	1	2	2
Pub. Health TH 102 Parasitology and Mycology for Nursing	1	1	1
Psych. 101 General Psychology	2	—	2
			19
<i>Summer Session</i>			
Nurs. 111 Medical-Surgical Nursing	5	1	6
Soc. 101 Sociology and Social Problems	3	—	3
			9

1. Arabic conversation for non-Arabic speaking students. Reported as Pass or Fail.

2. One credit hour of laboratory is the equivalent of two clock hours weekly per semester; one nursing laboratory hour is the equivalent of three and one half clock hours.

Second Year

	Lect. Hours per Week	Lab. ¹ Hours per Week	Semester Credit Hours
<i>First Semester</i>			
Eng. 118 English	2	—	2
Nurs. 120 Interpersonal Relationships	1	2	2
Nurs. 116 Medical-Surgical Nursing	8	3	11
Phys. 118 Physics	3	2	4
			<u>19</u>

Second Semester

Nurs. 131 Mental Health and Psychiatric Nursing	5	2	7
Nurs. 136 Maternal-Child Nursing	4	5	9
			<u>16</u>

Third Year

Summer Session (Ends day before First Semester begins) To be scheduled for groups of students Summer, First and Second Semester

Nurs. 140 Medical-Surgical Nursing (17 weeks)	2	9	11
Nurs. 141 Mental Health and Psychiatric Nursing (4 weeks)	1	3	4
Nurs. 146 Maternal-Child Nursing (18 weeks)	3	9	12
Nurs. 150 Nursing in a Community Hospital (6 weeks)	1	3	4

First Semester (Ends day before Semester begins)

Nurs. 151 Leadership-Management Principles	2	—	2
Pub. Health CHP 201 Community Nursing	2	—	2

Second Semester (Ends Friday before Commencement)

Nurs. 145 Foundations and Trends in Nursing	3	—	3
			<u>38</u>

1. One credit hour of laboratory is the equivalent of two clock hours weekly per semester; one nursing laboratory hour is the equivalent of three and one half clock hours.

BACHELOR OF SCIENCE IN NURSING PROGRAM

First Year

<i>First Semester</i>	Lect. Hours per Week	Lab. ² Hours per Week	Semester Credit Hours
Arab. 101 Studies in Arabic Language and Literature ¹	3	—	3
Chem. 101 General Chemistry	3	3	4
Eng. 103 or 105 English Communication Skills	3	2	4
Math. 101 Introductory College Mathematics	3	—	3
Phys. Educ. 001 or 003 Athletics for Men or Women	—	2	—
			14

Second Semester

Arab. 102 Studies in Arabic Language and Literature ¹	3	—	3
Biol. 201 General Biology	3	1	4
Chem. 102 General Chemistry	3	1	4
Elective, Humanities	3	—	3
Eng. 104 or 106 English Communication Skills	3	2	4
Phys. Educ. 002 or 004 Athletics for Men or Women	—	2	—
			18

Summer Session

Math. 102 Calculus and Analytic Geometry	4	—	4
Elective, Humanities	3	—	3
			7

1. Required of all students whose native language is Arabic. Non-Arabic speaking students study another foreign language.

2. One credit hour of laboratory is the equivalent of two clock hours weekly per semester; one nursing laboratory hour is the equivalent of three clock hours.

Second Year

	Lect. Hours per Week	Lab. ² Hours per Week	Semester Credit Hours
<i>First Semester</i>			
Chem. 201 Chemical Principles ¹	3	4	5
Cult. Studies 202 Ancient, Medieval, and Renaissance Culture	3	-	3
Eng.201 Advanced English Communication Skills	3	-	3
Library Orientation ³	1	-	-
Phys. 103 General Physics	3	2	4
Psych. 201 General Psychology	3	-	3
			<u>18</u>
<i>Second Semester</i>			
Chem. 208 Brief Survey of Organic Chemistry	3	-	3
Chem. 209 Organic Chemistry	1	4	2
Cult. Studies 202 Ancient, Medieval, and Renaissance Culture	3	-	3
Phys. 204 General Physics	3	3	4
Pub. Health EB 204 Introductory Biostatistics	1	2	2
Soc. 201 Introduction to Sociology, <i>or</i> Anthrop. 210 Introduction to Anthropology	3	-	3
			<u>17</u>
<i>Summer Session</i>			
Ed. 215 Psychology of Education	3	-	3
Nurs. 200 Introduction to Nursing as a Profession	2	-	2
Nutr. 200 Nutrition	2	2	3
			<u>8</u>

1. For students who do not hold the Baccalaureate II in Science or Mathematics or have not completed Chem. 101 and 102. An elective is required if Chem. 201 is not taken.

2. One credit hour of laboratory is the equivalent of two clock hours weekly per semester; one nursing laboratory hour is the equivalent of three clock hours.

3. Usually taken in conjunction with English 201.

Third Year

	Lect. Hours per Week	Lab. ² Hours per Week	Semester Credit Hours
<i>First Semester</i>			
Arab. 117 Arabic ¹	1	—	—
Bact. 237 Microbiology for Nurses	2	2	3
HM 200 Human Morphology	1	2	2
Nurs 300 Nursing Care of Adults	5	6	7
Anat. 246 Anatomy and Physiology	4	5	6
			<u>18</u>
<i>Second Semester</i>			
Arab. 118 Arabic ¹	1	—	—
Ed. 212 Principles and Methods of Teaching	2	2	3
Ed. 225 Child Development	3	—	3
Nurs. 301 Nursing Care of Adults	5	15	10
Pub. Health EB 226 Epidemiology	1	2	2
			<u>18</u>
<i>Summer Session</i>			
Nurs. 302 Psychiatric Nursing Care	3	9	6

Fourth Year*First Semester*

Nurs. 400 Maternal-Child Nursing I Psych., or Soc., or Anthropology (see approved course list)	4	9	7
Pub. Health CHP 328 Community Health Nursing	3	—	3
	3	10	8
			<u>18</u>

Second Semester

Nurs. 401 Maternal-Child Nursing II	3	12	7
Nurs. 403 Nursing Seminar	3	—	3
Nurs. 405 Advanced Nursing	3	12	7
			<u>17</u>

1. Arabic conversation for non-Arabic speaking students. Prerequisite: 40 hours of private instruction in conversational Arabic.

2. One credit hour of laboratory is the equivalent of two clock hours weekly per semester; one nursing laboratory hour is the equivalent of three clock hours.

POST BASIC PROGRAM IN ADMINISTRATION AND TEACHING OF NURSING

ADMINISTRATION AND TEACHING OF MEDICAL-SURGICAL NURSING

	Lect. Hours per Week	Lab. ² Hours per Week	Semester Credit Hours
<i>First Semester</i>			
Arab. 117 Arabic ¹	1	—	—
Nurs. 5 Medical-Surgical Nursing	6	4	10
Pub. Health CHP 203 Social and Psychological Foundations of Public Health	3	—	3
Pub. Health EH 101 General Science	3	1	4
			17
<i>Second Semester</i>			
Arab. 118 Arabic ¹	1	—	—
Nurs. 45 Foundations and Trends in Nursing	3	—	3
Nurs. 55 Principles of Administration and Supervision	3	4	7
Nurs. 65 Introduction to Curriculum Development	3	—	3
Nurs. 75 Principles and Methods of Teaching	3	2	5
			18
<i>Summer Session</i>			
Nurs. 11 Teaching of Medical-Surgical Nursing	3	2	5
or			
Nurs. 12 Administration of Medical Surgical Nursing Care	1	4	5
			5

1. Arabic conversation for non-Arabic speaking students. Prerequisite: 40 hours of private instruction in conversational Arabic.

2. One credit hour of laboratory is the equivalent of two clock hours weekly per semester; one nursing laboratory hour is the equivalent of three and one half clock hours.

ADMINISTRATION AND TEACHING OF MATERNAL-CHILD NURSING

	Lect. Hours per Week	Lab. ² Hours per Week	Semester Credit Hours
<i>First Semester</i>			
Arab. 117 Arabic ¹	1	—	—
Nurs. 25 Maternal-Child Nursing	4	4	8
Pub. Health CHP 203 Social and Psychological Foundations of Public Health	3	—	3
Pub. Health CHP 205 Growth and Development	1	1	2
Pub. Health EB 101 General Science	3	1	4
			17
<i>Second Semester</i>			
Arab. 118 Arabic ¹	1	—	—
Nurs. 45 Foundations and Trends in Nursing	3	—	3
Nurs. 55 Principles of Administration and Supervision	3	4	7
Nurs. 65 Introduction to Curriculum Development	3	—	3
Nurs. 75 Principles and Methods of Teaching	3	2	5
			18
<i>Summer Session</i>			
Nurs. 31 Teaching of Maternal-Child Nursing <i>cr</i>	3	2	5
Nurs. 32 Administration of Maternal-Child Nursing Care	1	4	5
			5

1. Arabic conversation for non-Arabic speaking students. Prerequisite: 40 hours of private instruction in conversational Arabic.

2. One credit hour of laboratory is the equivalent of two clock hours weekly per semester; one nursing laboratory hour is the equivalent of three and one half clock hours.

ADMINISTRATION AND TEACHING OF MENTAL HEALTH AND PSYCHIATRIC NURSING

	Lect. Hours per Week	Lab. ² Hours per Week	Semes- ter Credit Hours
<i>First Semester</i>			
Arab. 117 Arabic ¹	1	—	—
Pub. Health CHP 203 Social and Psychological Foundations of Public Health	3	—	3
Pub. Health CHP 303 Culture, Social Organization and Health	3	—	3
Nurs. 35 Mental Health and Psychiatric Nursing	3	4	7
Psychology course to be scheduled on basis of specific need	3	—	3
			16

Second Semester

Arab. 118 Arabic ¹	1	—	1
Nurs. 45 Foundations and Trends in Nursing	3	—	3
Nurs. 55 Principles of Administration and Supervision	3	4	7
Nurs. 65 Introduction to Curriculum Development	3	—	3
Nurs. 75 Principles and Methods of Teaching	3	2	5
			18

Summer Session

Nurs. 42 Administration of Mental Health and Psychiatric Nursing ³		2	5
or			
Nurs. 41 Teaching of Mental Health and Psychiatric Nursing	3	2	5
			5

Courses

The first number after the title of the course indicates the clock hours of lectures each week, the second number indicates the laboratory clock hours each week, and the third number indicates the credit hours per semester. Each hour of nursing laboratory is considered to be 1/3 to 1/4 credit hour; each hour in science laboratory is considered 1/4 to 1/2 credit hour. Courses are numbered as follows: 1-99 Post Basic certificate program in nursing, 100-199 Diploma program in nursing and 200-409 Degree program in nursing.

DIPLOMA PROGRAM IN NURSING

Anat. **101** and **102** *Anatomy and Physiology*. 3.2; 4 cr; first semester; 3.2; 4 cr; semester. Designed to develop knowledge of structure and normal function of the human body.

Arab. **117** and **118** *Arabic*. 1.0; 0 cr; first semester; 1.0; 0 cr; second semester. A course in colloquial Arabic to help non-Arabic speaking students communicate with patients and coworkers. Prerequisite: 40 hours of private instruction.

1. Arabic conversation for non-Arabic speaking students. Prerequisite: 40 hours of private instruction in conversational Arabic.

2. One credit hour of laboratory is the equivalent of two clock hours weekly per semester; one nursing laboratory hour is the equivalent of three and one half clock hours.

Bact. **102** *Microbiology for Nurses*. 2.2; 3 cr. Introduction to the characteristic activities of micro-organisms and their relation to disease prevention and control.

Chem. **117** *Chemistry*. 2.2; 3 cr. Fundamental principles of inorganic, organic, and physiological chemistry, with emphasis on clinical aspects of chemistry and their application to nursing.

Eng. **117** and **118** *English*. 3.0; 3 cr; first course; 2.0; 2 cr; second course.

Nurs. **101** *Orientation*. 1½, 0; 0 cr. Designed to orient the student to effective methods of study, technics of parliamentary procedure, and social usage.

Nurs. **105** and **106** *Fundamentals of Nursing*. 5.1; 5 cr; first semester; 4.3; 7 cr; second semester. The first course provides a broad overview of nursing as a community health service. Knowledge of health problems and resources acquired through lectures and observations in health agencies is utilized for development of concepts of the role of nurses and nursing in historical and contemporary settings. The second course assists the student in applying knowledge from natural and behavioral sciences to meet basic human needs in health and sickness. The impact of psycho-socio-economic factors and illness on personality is studied. Nursing situations in hospitals and out-patient clinics, and nursing conferences, provide opportunities for development of beginning skills in meeting comprehensive nursing needs of people.

Nurs. **110** and **120** *Interpersonal Relationships*. 1.2; 2 cr; each course. Ability to understand and use self therapeutically in communication and helping people.

Nurs. **111** and **116** *Medical-Surgical Nursing*. 5.1; 6 cr; first course; 8.3; 11 cr; second course. An integrated course designed to help the student understand the physiological, social and psychological needs of adults having medical or surgical health problems, and to acquire the knowledge, abilities and attitudes necessary to meet their preventive, curative, and rehabilitative nursing needs. Learning experiences in hospital (including operating room), clinics, home and community agencies are utilized.

Nurs. **131** *Mental Health and Psychiatric Nursing*. 5.2; 7 cr. Concepts of personality development and theories regarding psychological aspects of illness are used to develop sensitivity to reasons for human behavior, particularly in incipient or advanced mental disorders. Beginning skill in meeting patient needs and working with other health team members provided through laboratory experience in general and psychiatric hospitals.

Nurs. **136** *Maternal-Child Nursing*. 4.5; 9 cr. Basic understanding of maternal and child care. The aims of maternal and child health programs, their development and progress, the normal maternal cycle, the care of mothers with complications and care of the hospitalized child are included. The approach is family-centered and the nurse's role as health teacher is stressed. Care of selected patients in out-patient clinics, hospital and other maternal and child health agencies provides learning opportunities.

Nurs. **140** *Medical-Surgical Nursing*. 2.9; 11 cr. (17 weeks). Application of advanced scientific principles of care to meet the complex nursing problems of a medical or surgical nature.

Nurs. **141** *Mental Health and Psychiatric Nursing*. 1.3; 4 cr. (4 weeks). Emphasis is placed upon developing skills essential in meeting the more complex nursing care needs of the mentally sick adult encountered in general and psychiatric hospitals, in clinics, health centers, and the community.

Nurs. **145** *Foundations and Trends in Nursing*. 3.0; 3 cr. Historical development, practices and trends in nursing care and health services as they affect the nurse's role.

Nurs. **146** *Maternal-Child Nursing*. 3.9; 12 cr. (18 weeks). Designed to provide nursing care situations which enable the student to gain competence in complex nursing care, and function as a member of the health team.

Nurs. **150** *Nursing in a Community Hospital*. 1.3; 4 cr. (6 weeks). Planned learning experiences to help the student acquire skills in meeting the needs of people in Sidon Government Hospital, a hospital typical of those in the region.

Nurs. **151** *Leadership-Management Principles*. 2.0; 2 cr. Principles of leadership and management and their application in the nursing care of groups of patients, primarily in hospitals.

Nutr. **101** *Nutrition*. 2.1; 2 cr.

P.E. **1** or **3** *Athletics for Men or Women*. 1,2; 0 cr.

Phys. **118** *Physics for Nursing*. 3,2; 4 cr. Basic principles of physics and their application in patient care situations.

Psych. **101** *General Psychology*. 2.0; 2 cr.

Pub. Health CHP **201** *Community Nursing*. 2.0; 2 cr. Principles of family health supervision, case finding, referral technics for continuity of care and the nurse's role.

Pub. Health TH **102** *Parasitology and Mycology for Nursing*. 1.1; 1 cr. A survey of parasites and fungi of importance to man.

Soc. **101** *Sociology and Social Problems*. 3.0; 3 cr.

BACHELOR OF SCIENCE IN NURSING PROGRAM

Course descriptions for courses offered by the Faculty of Arts and Sciences, the School of Medicine or the School of Public Health appear in the respective chapters of this catalogue.

Arab. **101** and **102** *Studies in Arabic Language and Literature*. 3.0; 3 cr; annually.

Arab. **117** and **118** *Arabic*. See Arabic 117 and 118 course description, Diploma program, page 170.

Bact. **237** *Microbiology for Nurses*. 2.2; 3 cr. Offered by School of Medicine.

Biol. **201** *General Biology*. 3.1; 4 cr.

Chem. **101** *General Chemistry*. 3.3; 4 cr; each semester.

Chem. **102** *General Chemistry*. 3.3; 4 cr; annually.

Chem. **201** *Chemical Principles I*. 3.4; 5 cr; each semester.

Chem. **208** *Brief Survey of Organic Chemistry*. 3.0; 3 cr; annually.

Chem. **209** *Organic Laboratory for Non-Majors*. 1.4; 2 cr; annually.

Cultural Studies **201** and **202** *Ancient, Medieval and Renaissance Culture*. 3.0; 3 cr.

Educ. **212** *Principles and Methods of Teaching*. 2.2; 3 cr; annually.

Educ. **215** *Psychology of Education*. 3.0; 3 cr; annually.

Educ. **225** *Child Development*. 3.0; 3 cr; annually.

Eng. **103** and **104** *English Communication Skills*. 3.2; 4 cr; annually.

Eng. **105** and **106** *English Communication Skills*. 3.2; 4 cr; annually.

Eng. **201** *Advanced English Communication Skills*. 3.0; 3 cr; annually.

HM **200** *Human Morphology*. 1.2; 2 cr. Offered by School of Medicine.

Library Orientation. A short-term, non-credit course on the effective use of libraries and library materials. Usually taken in conjunction with Eng. 201, but exemption from Eng. 201 does not provide exemption from this course.

Math. **101** *Introductory College Mathematics*. 3.0; 3 cr; annually.

Math. **102** *Calculus and Analytic Geometry I*. 4.0; 4; annually.

Nurs. **200** *Introduction to Nursing as a Profession*. 2.0; 2 cr.

Nurs. **300** and **301** *Nursing Care of Adults*. 5.6; 7 cr and 5.15; 10 cr. The major adult health problem arising from pathophysiologic adaptations to illness, and the nursing care required by responses of individuals and the therapeutic management.

Nurs. **400** and **401** *Maternal-Child Nursing I and II*. 4.9; 7 cr and 3.12; 7 cr. A family-centered approach is utilized in assisting students to meet the normal psycho-social and physiological needs of mothers and infants during the maternity cycle, and in acquiring the abilities essential in care of sick and well children.

Nurs. **403** *Nursing Seminar*. 3.0; 3 cr. Societal changes and their implications for the nursing and nursing practitioner. Research and improvement of nursing and nursing education.

Nurs. **405** *Advanced Nursing*. 3.12; 7 cr. Further development of abilities in assessing, planning, coordinating and improving nursing care of groups of patients, and leadership responsibilities.

Nutr. **200** *Nutrition*. 2.2; 3 cr.

Phys. Educ. **001** and **002** *Athletics for Men*. 0.2; 0 cr; each semester.

Phys. Educ. **003** and **004** *Athletics for Women*. 0.2; 0 cr; each semester.

Phys. **103** *General Physics I*. 3.2; 4 cr.

Phys. **204** *General Physics II*. 3.3; 4 cr.

Physio. **246** *Anatomy and Physiology*. 4.5; 6 cr. Offered by School of Medicine.

Psych. **201** *General Psychology*. 3.0; 3 cr; annually.

Pub. Health CHP **328** *Community Health Nursing*. 3.10; 8 cr. Offered by School of Public Health.

Pub. Health EB **204** *Introductory Biostatistics*. 1.2; 2 cr. Offered by School of Public Health.

Pub. Health EB **226** *Epidemiology*. 1.2; 2 cr. Offered by School of Public Health.

Soc. **201** *Introduction to Sociology*. 3.0; 3 cr. each semester.

Soc. **210** *Introduction to Anthropology*. 3.0; 3 cr; each semester.

POST-BASIC PROGRAM IN ADMINISTRATION AND TEACHING OF NURSING

Arab. **117** and **118** *Arabic*. See Arabic 117 and 118 course description, Diploma program, page 170.

Nurs. **5** *Medical-Surgical Nursing*. 6.4; 10 cr. Further develops the student's knowledge and ability to meet the total nursing needs of patients having medical and surgical health problems as a basis for effective teaching or supervision. Principles and concepts from natural and social sciences, nutrition, medical science and nursing serve as the focus. A nursing problem approach is utilized.

Nurs. **11** *Teaching of Medical-Surgical Nursing*. 3.2; 5 cr. Theory and practice in teaching under guidance of experienced teachers.

Nurs. **12** *Administration of Medical-Surgical Nursing Care*. 1.4; 5 cr. Learning experiences are provided to further develop knowledge and abilities used in head nurse, supervisory, or junior administrative positions.

Nurs. **25** *Maternal-Child Nursing*. 4.4; 8 cr. The nurse's role and abilities essential in meeting needs of mothers throughout the maternity cycle, as well as sick and well children, are studied through a family centered approach to health care.

Nurs. **31** *Teaching of Maternal-Child Nursing*. 3.2; 5 cr. Theory and practice in teacher-related activities under the guidance of experienced teachers.

Nurs. **32** *Administration of Maternal-Child Nursing Care*. 1.4; 5 cr. Learning experiences are provided to further develop the student's knowledge and abilities related to head nurse, supervisory, or junior administrative positions.

Nurs. **35** *Mental Health and Psychiatric Nursing*. 3.4; 7 cr. Theories and concepts of personality development and integration, and principles and methods of therapy are utilized to further develop the student's ability to meet needs of people with mental health problems or psychiatric disorders, and work effectively as a health team member.

Nurs. **41** *Teaching of Mental Health and Psychiatric Nursing*. 3.2; 5 cr. Theory and practice in teacher-related activities under the guidance of experienced teachers.

Nurs. **42** *Administration of Mental Health and Psychiatric Nursing*. 3.2; 5 cr. Learning experiences are provided to further develop the student's knowledge and abilities related to head nurse, supervisory, or junior administrative positions.

Nurs. **45** *Foundations and Trends in Nursing*. 3.0; 3 cr. Historical development of nursing; trends in nursing and nursing education and their impact upon the nurse's role and responsibilities.

Nurs. **55** *Principles of Administration and Supervision*. 3.4; 7 cr. Principles of administration and their application in planning, directing, evaluating and improving nursing care, primarily in hospital nursing services.

Nurs. **65** *Introduction to Curriculum Development*. 2.0; 2 cr. Principles of curriculum development and their implementation in nursing diploma and non-professional nurse level programs.

Nurs. **75** *Principles and Methods of Teaching*. 3.2; 5 cr. Introduction to the learning process, and the aims, methods and technics of teaching and evaluation.

Pub. Health CHP **203** *Social and Psychological Foundations of Public Health*. 3.0; 3 cr. Offered by School of Public Health.

Pub. Health CHP **205** *Growth and Development*. 1.1; 2 cr. Offered by School of Public Health.

Pub. Health CHP **303** *Culture, Social Organization and Health*. 3.0; 3 cr. Offered by School of Public Health.

Pub. Health EH **101** *General Science*. 3.1; 4 cr. Offered by School of Public Health.

SCHOOL OF PUBLIC HEALTH

SCHOOL OF PUBLIC HEALTH

Faculty List 1971-1972

Craig S. Lichtenwalner, M.D., M.P.H.; *Professor of Public Health Practice, Dean of the Faculties of Medical Sciences.*

Louis J. Verhoestraete, M.D., M.P.H.; *Professor of Maternal and Child Health, Director of the School of Public Health.*

Gabriel E. Rifka, M.D., D.P.H.; *Associate Professor of Public Health Administration, Assistant Director of the School of Public Health.*

Raif E. Nassif, M.D.; *Professor of Clinical Pathology, Associate Dean of the Faculties of Medical Sciences.*

Farid Amin Fuleihan, B.B.A.; *Registrar.*

PROFESSORS

* Azar, Joseph E. - M.D., American University of Beirut; D.T.M. & H., London School of Hygiene and Tropical Medicine; *Infectious Diseases and Epidemiology.*

* Churchill, Charles - Ph.D., New York University; *Public Health Statistics.*

* Edeson, John - A.R.C.Sc., B.Sc., University of London; M.B., Ch.B., M.D., University of Sheffield; D.P.H., University of Liverpool; *Tropical Health.*

* Harfouche, Jamal K. - M.D., American University of Beirut; M.S. in Hyg., D.P.H., Harvard University; *Maternal and Child Health.*

* Lichtenwalner, Craig S. - M.D., Long Island College of Medicine; M.P.H., Harvard University; *Public Health Practice.*

* Stephen, Lorne E. - D.V.M., University of Toronto; D.A.P. & E., London School of Hygiene and Tropical Medicine; F.R.C.V.S., Royal College of Veterinary Surgeons, London; *Tropical Health and Protozoology.*

* Sweatman, Gordon K. - M.A., University of Toronto; Ph.D., McGill University; *Parasitology and Tropical Health.*

Verhoestraete, Louis J. - M.D., University of Louvain; M.P.H., Harvard University; *Maternal and Child Health.*

ASSOCIATE PROFESSORS

* Abou-Daoud, Kamal T. - M.D., American University of Beirut; D.T.M. & H., London School of Hygiene and Tropical Medicine; M.S. in Hyg., Harvard University; *Epidemiology.*

* Acra, Aftim N. - Ph.C., American University of Beirut; M.P.H., University of North Carolina; *Sanitary Chemistry.*

Haddad, Nadim - M.D. American University of Beirut; M.P.H., Harvard University; *Public Health Administration.*

Najemy, Robert E. - M.S.W., Boston College; *Medical Social Work.*

Rifka, Gabriel E. - M.D., American University of Beirut; D.P.H., London School of Hygiene and Tropical Medicine; *Public Health Administration.*

* On Tenure Appointment.

ASSISTANT PROFESSORS

- Frayha, George J. - M.S., American University of Beirut; Ph.D., University of Massachusetts; *Parasitology and Tropical Health*.
- Hunt, Rita V. - B.S. in Nursing, New York University; M.S., University of California; *Public Health Nursing*.
- Ibrahim, Jack - B.S., Washington State University; M.P.H., University of California; *Environmental Health*.
- Merchant, Najmuddin - D.P.H., University of California, Los Angeles; M.Sc. (Microbiology), University of Karachi; Dip. Pharm., Dow Medical College, Karachi; *Environmental Health*.
- Shamma, Aida Cotran - Dip. P.H., American University of Beirut; M.P.H., University of North Carolina; *Health Education*.

LECTURERS

- Abu Zeid, Elie - D.V.M., Université de Paris; *Environmental Health*.
- Atallah, Basil - M.D., American University of Beirut; *Community Health Care*.
- Dajani, Said - M.D., Dip. P.H., American University of Beirut; *Public Health Administration*.
- Dooley, Jean W. - M.N., University of Yale; M.S.N.S., Catholic University of America; *Nursing /Midwifery (Visiting)*.
- Hasna, Shawki - Dip.P.H., American University of Beirut; *Public Health Education*.
- Hayek, Elias F. - M.D., Faculté Française de Médecine, Beirut; M.P.H., Harvard University; *Public Health Administration*.
- Khouri, Yvonne - M.S. Northwestern University; *Hospital Administration*.
- Mourad, Sah'1 - M.D., Faculté Française de Médecine, Beirut; Dr.P.H., Tulane University; *Tropical Health*.
- Sawaya, Salah - M.A., American University of Beirut; *Public Health Statistics*.
- Sharif, Mohammad - M.B., B.S., Grand Medical College, University of Bombay; F.R.C.S. (Eng.); Dip. in Urology, Institute of Urology, University of London; Dip. in Aviation Medicine, U.S. Air University, School of Aviation Medicine; *Public Health Administration*.

INSTRUCTORS

- Abi-Yaghi, Marie José - M.D., Faculté Française de Médecine, Beirut; Dip.P.H., American University of Beirut; *Child Health*.
- Azzi, Donata J. - Nursing Diploma, American University of Beirut; *Public Health Nursing*.
- Koussa, Mtanios G. - B.A., American University of Beirut; *Tropical Health*.
- Milki, Raif K. + - B.S., American University of Beirut; *Environmental Health*.
- Zurayk, Huda + - M.S., Harvard University; *Public Health Statistics*.

+ On Furlough or Leave.

ASSISTANT INSTRUCTORS

Ibrahim, Fulla - Nursing Diploma, American University of Beirut; Certificate in Health. Visiting, Sudanese Board of Medical Services; Certificate in Midwifery (I & II), C.M.B., England; *Public Health Nursing/Midwifery*.

Zeidan, Mary G. - Nursing Diploma, American University of Beirut; B.A., Beirut College for Women; *Public Health Nursing*.

RESEARCH ASSISTANTS

Abu-Shedid, Samir - B.B.A., American University of Beirut; *Public Health Administration*.

Deurguerian, Seta - M.A., American University of Beirut; *Public Health Administration*.

Hawwa, Michel - B.B.A., American University of Beirut; *Public Health Administration*.

Kantemiroff, Maria - Licence, Ecole Supérieure des Lettres, Beirut; *Public Health Administration*.

Lattouf, Elizabeth - B.A. American University of Beirut; *Public Health Administration*.

Lorfin, Irene A. - M.A. , American University of Beirut; *Public Health Statistics (Senior Research Assistant)*.

Razzouk, Helen - B.A., Beirut College for Women; *Community Health Practice*.

Samara, Elham - M.A., American University of Beirut; *Community Health Practice*.

Shadid, Hiam - B.A. , Beirut College for Women; *Epidemiology*.

Tebsherani, Amelia - M.S., American University of Beirut; *Public Health Administration*

Tomah, Abdallah - B.S., American University of Beirut; *Environmental Health*.

Topjian, Varsenig - B.S. in Pharmacy, M.S., American University of Beirut; *Tropical Health*.

General Information

The establishment of the School of Public Health in 1954 was the outgrowth of an expressed concern of the American University of Beirut and its Trustees to provide technical and leadership training to persons required to staff ministries of health and public health services in newly emergent countries of the Middle East and Africa. The program of the University in public health in the intervening years has been patterned closely upon the immediate and often critical needs of most of these countries, for laboratory technicians, sanitarians, health educators, public health nurses and home visitors. At the same time, it was appreciated from the outset that the University had a longer range responsibility to provide training in administrative techniques in health programming to medical officers of health who would be concerned with the institution and direction of these community programs of disease prevention and control.

With the passage of time the School has seen its first graduates share in the creation of other national and regional training centers for health technicians. This heartening development now permits the School to concentrate its efforts and resources in increasing measure upon programs of leadership training for medical officers

of health and other key members of the public health team, and also upon the development of research facilities necessary to train scientists in biomedical disciplines basic to the modern practice of public health.

The School of Public Health is one of four schools of the Faculties of Medical Sciences. Internally, the School consists of five Departments and the administrative office of the Director. The School also serves as a Department of Preventive Medicine for the School of Medicine.

Physically the School occupies one building adjacent to the Medical and Pharmacy schools, as well as additional space in Van Dyck Hall, the Pathology Department and the Hospital compound (old private clinics). The School's Faculty and Staff participate with the municipality of Beirut and the Lebanese Public Health Association in operating Demonstration Health Centers. In addition, they participate with the municipalities of Mreiji (Mt. Lebanon) and Aitaroun (South Lebanon), and with the Lebanese Red Cross in operating an experimental Family Health Care program at peri-urban and rural levels. Extension work is also being carried out at the Sidon Government Hospital. The Jafet Library and the Medical Library are conveniently situated to the laboratories and classrooms of the School of Public Health. Vehicles are available for field studies and research activities in the community.

All students in the School of Public Health are members of the Public Health Students Society. This group fosters social and professional relationships between students. Election of officers is held in the first semester, and committee appointments are made at that time. The Public Health Students Society sponsors such activities as tours, conferences, athletic events, social evenings, and *Campus*, the annual yearbook of the University.

ADMISSION

1. GENERAL

All applicants for admission to the School of Public Health must be proficient in the English language. An English examination will be administered to all students before admission, preferably prior to coming to Beirut. Exceptions may be made in the case of those students who have completed their basic work in English.

Applicants who have reached the age of 40 will be admitted only by special permission of the Director on recommendation of the Admissions Committee.

2. SPECIFIC PROGRAMS

a. Master of Public Health

Admission is limited to persons holding a graduate degree from an acceptable institution in a discipline relevant to public health, or a Bachelor's degree from an acceptable institution, with substantial knowledge in a discipline relevant to public health through either study or experience or a combination of both.

b. Bachelor of Science in Environmental Health

To be eligible for admission to the program leading to the degree of Bachelor of Science (Environmental Health), candidates must have completed satisfactorily the Freshman Science Program in the School of Arts and Sciences, or an equivalent program, with a grade of 70 or more in at least 12 credit hours and an average of 70 or more in chemistry or mathematics, and must be accepted by the School of Public Health.

Lebanese students must present the Lebanese Baccalaureate Part II (Experimental Science or Mathematics) or its equivalent, and should be considered by the Registrar to be eligible for admission to Sophomore (Science) Class.

Courses taken before the student is admitted to the B.S. Program may be credited at the discretion of the Department of Environmental Health.

c. Diploma in Public Health Nursing

To be eligible for admission, a candidate must have completed a course of study in an approved school of nursing or in a combined nurse-midwife/home visitor school, to either of which an admission requirement is the completion of secondary school, or an equivalent matriculation, and must have had experience of at least one year in the field of nursing or public health or a related field.

d. Post Basic Program in Midwifery

To be eligible for admission, a candidate must have completed a course of study in an approved school of midwifery and be recognized as a midwife in her own country, and must have a minimum of one year's experience in midwifery or an acceptable associated area.

e. Certificate in Basic Laboratory Technique

To be eligible for admission, a candidate must have completed secondary school (11th or 12th grade) or matriculation at the secondary level and must have an adequate background in chemistry and mathematics. In general, this should consist of at least one year's course in each subject in secondary school. Applicants whose background has been entirely in arts and/or social sciences will not be accepted.

3. Special Students in Non-Degree Programs

The School, in exceptional circumstances, may accept a limited number of special students who do not meet the formal entrance requirements. Each student will be considered on an individual basis. A special student is not a candidate for a degree, a diploma, or a certificate. At the completion of the period of study, the student will receive a letter signed by the Director of the School describing the content of his training program.

Students admitted as "Special" because of failure in the English Entrance Examination may be upgraded by vote of the Faculty to regular status if they meet the academic requirements for the first semester.

GRADUATION REQUIREMENTS

Recommendation for graduation of a student is made by vote of the Faculty of the School.

a. Master of Public Health

To be eligible for graduation in the M.P.H. Program, a student must have passed all courses with minimum grades of 70, must have a weighted average of at least 75 at the end of the Program and have a total of at least 30 credit hours. The Program lasts normally for one academic year, but in exceptional circumstances students may complete it in two academic years.

b. Bachelor of Science in Environmental Health

To be eligible for the B.S. degree, a student must have completed satisfactorily the prescribed program of study in the School with a minimum of 100 semester credit hours plus the Freshman Science credits or equivalent, must have attained a cumulative general average of 70 and must have completed satisfactorily the assigned period of summer field training.

c. Diploma in Public Health Nursing

To be eligible for graduation in the Public Health Nursing Programs leading to a Diploma, a student must have passed all courses with a weighted average of 70, with credit hours totaling at least 30 for the two semesters, and must have completed satisfactorily the assigned period of summer field training.

d. Post Basic Program in Midwifery

To be eligible for graduation in the Post Basic Midwifery Program leading to a Certificate, a student must have passed all courses with a weighted average of 60, with credit hours totaling 30 for the two semesters, and must have completed satisfactorily the assigned period of summer field training.

e. Certificate in Basic Laboratory Technique

To be eligible for the Certificate in Laboratory Technique, a student must have passed all courses with a weighted average of 60, with credit hours totaling 30 for the two semesters, and must have completed satisfactorily the assigned period of summer field training.

2. GRADUATION WITH DISTINCTION

Outstanding students in each year's graduating class may be awarded their degrees or diplomas *with distinction*, based on excellent character and a weighted average of 85 or more. In addition the B.S. degree will be granted with distinction only to students who have completed a minimum of two academic years of residence at the School. All candidates for graduation with distinction must be approved by the Faculty of the School. Graduation with distinction does not apply to certificate students.

ACADEMIC RULES AND REGULATIONS**Grades**

The numerical evaluation of the student's achievement will include his work in theory, practice, laboratory, seminars, final examinations and any other requirements.

Final evaluation of students takes place at the end of each semester (and summer period where applicable). Each Department chairman is responsible for furnishing the Director with grades and recommendations about students as necessary.

In the School of Public Health the following grading system is used: 90-100 Excellent; 80-89 Good; 70-79 Fair; 60-69 Weak; below 60 Failing (except in the M.P.H. program in which a grade of 70 is necessary for passing).

To be placed on the Dean's Honor List, a student must: (a) be taking 12 or more credit hours; (b) have a minimum weighted semester average of 85; (c) not be repeating; and (d) be recommended by the Director to the Dean of the Faculties of Medical Sciences.

Failures and Deficiencies

A student with a semester weighted average of 70 (60 for certificate students) or more who is failing in not more than 6 credit hours in courses offered in the School of Public Health may at the discretion of the Faculty be allowed to repeat the courses, or to take make-up examinations.

(b) At the end of any academic year a student who has failed in 7-12 credit hours and has failed make-up examinations may be allowed to repeat the year, but only by vote of the Faculty.

(c) A student failing 13 credit hours or more at the end of an academic year will be dropped.

(d) A student passing in all courses, but with an annual weighted average below the requirement, may repeat the academic year if allowed to remain in the School by vote of the Faculty. In exceptional circumstances, he may be required by vote of the Faculty to pass a comprehensive examination in the year's work. However, the original grades will not be changed.

(e) A student repeating an academic year must attain a minimum yearly average of 75.

f) A student will not be permitted to repeat a course or an academic year more than once.

(g) Any student who does not maintain the minimum weighted average and has any failures in required courses may, by vote of the Faculty, be:

- (1) Dropped from the School;
- (2) Placed on probation;
- (3) Allowed to sit for make-up examinations; *or*
- (4) Required to repeat the course(s).

Probation

(a) A student may be placed on academic probation in accordance with paragraph g. (2) above, or may be placed on disciplinary probation.

(b) A student who is not able to remove academic or disciplinary probation after two semesters (summer session of 9 credit hours is considered as a semester) will be dropped from the School of Public Health.

Make-up Examinations

(a) Make-up examinations for students who were absent for valid reasons, or who have been allowed by the Faculty to take make-up examinations, are given within two weeks after the beginning of the second semester for first semester courses and within two weeks after the final examinations for second semester courses. A student who does not take the make-up examinations in time will receive a grade of W/F 40 for the courses.

(b) A make-up examination grade shall be substituted for a final examination grade in evaluating the student's final grade for the course. However, the original recorded grade will be used to compute the final weighted average of the semester. If the student has a passing grade after the make-up examination, the fact will be entered on the record as "make-up" passed.

Incomplete Grades

Incomplete grades of first semester courses must be completed by the student before the end of the second semester of that year. Incomplete grades of second semester

courses must be completed before the beginning of the following academic year. A student who fails to complete his courses in time without reasons considered valid by the Academic Committee will lose credit for these courses. Exceptional cases will be considered by the Academic Committee.

Attendance

(a) Regular attendance is required at all class sessions. A student, however, is allowed in each course a number of unexcused absences per semester which shall not exceed the number of sessions scheduled per week in that course.

(b) In case of illness, a medical certificate from a physician in the University Health Service should be given promptly to the Director's Office by the student.

(c) Any student who absents himself from all classes for two consecutive weeks without informing the Director's Office about his absence will be considered as having withdrawn, and will not be allowed to continue during that semester without special action of the Faculty.

(d) Any student who absents himself during a semester from more than one-third the number of sessions of any course loses all credit for the course, regardless of what his excuse for absence may be. He shall be graded as W/F. For the purpose of averaging, W/F shall be considered as 40.

(e) All excessive absences from class shall be reported by the instructor to the Director's Office for any action necessary.

Disciplinary Action

A student engaging in academic misconduct such as cheating in examinations or plagiarism shall be referred by the Department concerned to the Disciplinary Committee for final action. The usual procedure will be immediate dismissal of the student if he is found guilty. Any student who in the judgement of the Faculty of the School does not show academic or professional promise may be dropped at any time.

Explanatory Note

Any Faculty action in academic matters contained in this Policy statement shall take place after recommendations have been made to the Faculty by the Academic Committee. The Faculty, however, is the final authority for academic actions.

GRADUATE STUDY

General requirements for graduate study are found in the special chapter at the end of this catalogue entitled Graduate Study.

Specific requirements for the M.P.H. degree are to be found under Curriculum below, and for the M.S. degree in Parasitology under the section entitled Department of Tropical Health. The M.P.H. degree does not require a thesis.

Curricula**DEGREE OF MASTER OF PUBLIC HEALTH**

	Lect. Hours per Week	Lab. Hours per Week	Se- mes- ter Credit Hours
<i>First Semester</i>			
(Core Courses)			
CHP 301 Culture, Social Organization and Health	1	2	2
EB 301 Epidemiology	2	2	3
EB 303 Biostatistics I	2	3	3
PHA 301 Public Health Administration	2	2	3
(Group Required Courses)			
CHP 303 Maternal and Child Health (for Physicians and equivalent, B.S. Nurses and Nurse-midwives)	1	2	2
CHP 305 Problems in Health Education (for Health Educators and B.S.)	2	2	3
TH 301 Public Health Microbiology and Animal Agents of Diseases (for medically qualified and equivalent)	2	3	3
<i>Second Semester</i>			
(Core Courses)			
EH 302 Elements of Environmental Health	2	2	3
(Group Required Courses)			
CHP 316 Research Methods in Health Education (for Health Educators)	2	3	3
TH 302 Introductory Microbiology and Parasitology (for non-medically qualified)	2	3	3
(Elective Courses)			
CHP 302 Child Health Practice	1	3	2
CHP 304 Nutrition	1	2	2
CHP 306 Population Dynamics and Family Health	1	2	2
CHP 308 School Health	1	2	2
Tutorials in the following areas:			
CHP 310 Growth and Development			(up to 2 credits)
CHP 312 Family Health and the Special Problem Child			(up to 2 credits)
CHP 314 Research Methods in Community Health			(up to 2 credits)
CHP 318 School Health Education	1	2	2
CHP 320 Community Organization for Health Education	1	2	2
CHP 322 Audio-Visual Aids in Health Education	1	3	2
CHP 324 Communication Skills in Public Health Nursing	1	2	2
CHP 326 Advanced Field Practice in Public Health Nursing	2	4	2
EB 302 Epidemiology of Infectious Diseases	1	2	2
EB 304 Epidemiology of Non-Infectious Diseases	1	2	2
EB 306 Prevention, Control and Eradication of Disease	1	2	2
EB 308 Biostatistics II	1	3	2

	Lect. Hours per Week	Lab. Hours per Week	Se- mes- ter Credit Hours
EB 310 Public Health Statistics	1	3	2
EB 312 Demography	1	2	2
EB 314 Computers and Computer Programming	1	2	1
EB 316 Tutorial	(up to 2 credits)		
EH 304 Water and Wastes	3	3	4
EH 306 Milk Sanitation	2	3	3
EH 308 Tutorial	(up to 2 credits)		
PHA 302 Health Planning	1	2	2
PHA 304 Introduction to Hospital Administration	1	2	2
PHA 306 Medical Care Administration	1	2	2
PHA 308 Tutorial	(up to 2 credits)		
TH 304 Medical Entomology (for medically and non-medically qualified)	2	3	3
TH 306 Tropical Hygiene (for medically qualified)	2	2	3
TH 308 Tropical Dermatology (for medically qualified)	1	2	2
TH 310 Tropical Nutrition (for medically qualified and equivalent)	1	2	2

DEGREE OF BACHELOR OF SCIENCE

This curriculum provides a broad education in basic sciences and a fundamental knowledge in environmental health.

It is intended to prepare professionals for careers in environmental health as sanitarians.

Freshman Science — School of Arts and Sciences

First Semester

Arabic 101 Studies in Arabic Language and Literature ¹	3	—	3
Chemistry 101 General Chemistry	3	3	4
Eng. 103 or 105 English Communication Skills	3	2	4
Mathematics 101 Introductory College Mathematics	3	—	3
Phys. Educ. 001 or 003 Freshman Athletics	—	2	—

Second Semester

Arabic 102 Studies in Arabic Language and Literature ¹	3	—	3
Chemistry 102 General Chemistry	3	3	4
Eng. 104 or 106 English Communication Skills	3	2	4
Mathematics 102 Calculus and Analytic Geometry I	4	—	4
Phys. Educ. 002 or 004 Freshman Athletics	—	2	—

1. Arabic is required of Arabic-speaking students. Non-Arabic speaking students may take an appropriate elective.

	Lect. Hours per Week	Lab. Hours per Week	Se- mes- ter Credit Hours
First Year			
<i>First Semester</i>			
Biology 201 General Biology	3	3	4
Physics 103 General Physics I ¹	3	3	4
Psychology 201 General Psychology	3	—	3
Sociology 201 Introduction to Sociology	3	—	3
TH 119 Introduction to Microbiology	3	1	3
<i>Second Semester</i>			
Biology 202 General Biology	3	3	4
Chemistry 201 Chemical Principles I	3	4	5
English 201 Advanced English Communication Skills	3	—	3
Physics 204 General Physics II	3	3	4
Second Year			
<i>First Semester</i>			
Biology 272 Entomology	2	4	4
Chemistry 211 Organic Chemistry I	3	—	3
EH 233 Water and Sewage	2	3	3
EH 239 Industrial Health	2	3	3
PSPA 201 Introduction to Political Studies and Public Administration	3	—	3
<i>Second Semester</i>			
BV 248 Medical Bacteriology	3	4	5
Chemistry 212 Organic Chemistry II	3	—	3
Chemistry 213 Organic Chemistry Laboratory	1	8	4
EH 234 General Sanitation	2	3	3
Sociology 272 Cultural Change ²	3	—	3
<i>Summer Session</i>			
Field Training			

-
1. An elective is chosen instead if the student has previously taken the course or its equivalent and has been exempted from it by the advisor.
 2. Will be substituted by TH 364 in alternate years.

Third Year*First Semester*

	Lect. Hours per Week	Lab. Hours per Week	Se- mes- ter Credit Hours
CHP 365 Public Health Education	1	2	2
Economics 203 Survey of Economics	3	—	3
EH 231 Food Hygiene	2	3	3
EH 251 Sanitary Analysis of Water and Sewage	2	3	3
EH 295 Environmental Health Project		variable	
PHA 301 Public Health I	2	2	3

Second Semester

EB 310 Epidemiology	1	2	2
EB 360 Introductory Biostatistics	1	2	2
Pharmacog. 248 Pesticides	1	—	1
TH 204 Parasitology	3	2	4
TH 364 Medical and Veterinary Entomology ¹	2	4	4
Electives in Public Health			2 - 3

DIPLOMA IN PUBLIC HEALTH NURSING*First Semester*

CHP 207 Public Health Nursing I	2	3	3
CHP 205 Growth and Development	1	2	2
PHA 201 Public Health Administration	1	2	2
TH 201 Introduction to Microbiology	2	1	2
CHP 203 Social and Psychological Foundations of Public Health	3	—	3
CHP 209 Public Health Education	1	2	2

Second Semester

CHP 208 Public Health Nursing II	2	6	5
CHP 210 Public Health Nursing Teaching Functions	1	2	2
CHP 204 Nutrition in Public Health	2	1	2
CHP 212 Human Relations	2	—	2
EB 202 Epidemiology	1	2	2
EB 206 Descriptive Statistics	½	1	1
EH 202 Introduction to Environmental Health	1	2	2

Summer Session

Eight weeks including supervised field work with correlated theoretical instruction as follows:

Supervision and Administration, Public Health Nursing	28 hrs.
First Aid	24 hrs.
Use of Audio-Visual Tools	16 hrs.
Public Health Nursing Seminar	32 hrs.
Supervised field instruction and project	100 hrs.

1. Will be substituted by Sociology 272 in alternate years.

POST BASIC PROGRAM IN MIDWIFERY

	Lect. Hours per Week	Lab. Hours per Week	Se- mes- ter Credit Hours
<i>First Semester</i>			
CHP 105 Introduction to Public Health Education	1	2	2
CHP 103 Fundamentals of Nutrition	2	2	3
CHP 101 Midwifery I	3	4	5
CHP 205 Growth and Development	1	2	2
CHP 203 Social and Psychological Foundations of Public Health	3	—	3
PHA 201 Public Health Administration	1	2	2

Second Semester

CHP 102 Midwifery II	3	3	5
CHP 104 Principles and Methods of Teaching	3	1	3
CHP 106 Solving Community Health Problems	2	—	2
CHP 108 Audio-visual Aids in Health Education	1	3	2
EB 102 Introduction to Epidemiology	1	2	2

Summer Session

Eight weeks including supervised field work with correlated theoretical instruction as follows:

Teaching and supervision of the indigenous midwife	32 hours
Introduction to Research Methodology	32 hours
Midwifery Conferences	28 hours

CERTIFICATE IN BASIC LABORATORY TECHNIQUE

The program in Basic Laboratory Technique has been designed to meet the great need for laboratory workers in public health and clinical laboratories in the countries served by the School of Public Health.

The curriculum is specialized and is geared almost entirely to laboratory training. Because of this, the applicants have, in addition to English, a strong background in chemistry and mathematics.

First Semester

BV 15 Bacteriological Technique I	2	4	4
CP 11 Clinical Chemistry I	2	4	4
CP 17 Clinical Pathology I	1	3	2
EH 101 General Science	3	2	4
TH 113 Parasitological Technique I	1	2	2

Second Semester

BV 16 Bacteriological Technique II	2	6	5
CP 12 Clinical Chemistry II	2	4	4
CP 18 Clinical Pathology II	2	4	4
TH 114 Parasitological Technique II	1	2	2

Courses

The first number after the title of the course indicates the didactic hours each week, the second number indicates the laboratory or practical hours each week, and the third number indicates the credit hours per semester.

Detailed course descriptions are available for those requiring further information.

DEPARTMENT OF COMMUNITY HEALTH PRACTICE

Chairman : Harfouche, J.

Professors : Hunt, R.; Najemy, R; Shamma, A.

Lecturers : Atallah, B; Dooley, J. (Visiting); Hasna, S.

Instructors : Abi-Yaghi, M.; Azzi, D; Ibrahim, F; Zeidan, M.

The Department of Community Health Practice consists of four programs of study, which offer courses in maternal and child health (MCH) and nutrition; health education; public health nursing; and midwifery. Students wishing to take courses in any of the above-mentioned areas of study towards the M.P.H. degree, the Diploma in Public Health Nursing, and the Certificate in Post Basic Midwifery, should meet the approval of the Department and the School admission requirements.

Maternal and Child Health (MCH) and Nutrition

The Program in MCH and Nutrition offers to physicians working towards the M.P.H. degree a series of courses: group core, electives, and tutorials. Holders of the B.S. degree in Nursing may be allowed to take the group core course in MCH, but not the elective and tutorial courses, which are intended for physicians only. In addition to lectures, seminars, and field visits, courses provide experience in report writing, in library research, and in designing and conducting special studies in the fields of MCH, nutrition, and community health practice.

The program is also responsible for the coordination of the Experimental Family Health Service designed for service, training, and operational research in the delivery of total ambulatory health care; and collaborates with the Departments of Pediatrics and Obstetrics and Gynecology in offering annually three 12-day refresher courses to physicians (pediatricians, MCH officers, obstetricians and general practitioners) from various countries of the Middle East. These courses constitute a part of the WHO-UNICEF-AUB- sponsored Regional Training Program in Child Health and Midwifery, with concentration on three areas of study: child health; school health; family health and population dynamics.

CHP **301** *Culture, Social Organization and Health.* 1.2; 2 cr; first semester.

CHP **303** *Maternal and Child Health (group core).* 1.2; 2 cr; first semester.

CHP **302** *Child Health practice.* 1.3; 2 cr; second semester.

CHP **304** *Nutrition.* 1.2; 2 cr; second semester.

CHP **306** *Population Dynamics and Family Health.* 1.2; 2 cr; second semester.

CHP **308** *School Health.* 1.2; 2 cr; second semester.

CHP **310** *Growth and Development.* Up to 2 cr; second semester.

CHP **312** *Family Health and the Special Problem Child.* Up to 2 cr; second semester.

CHP **314** *Research Methods in Community Health.* Up to 2 cr; second semester.

Health Education

The Health Education Program has two objectives: (1) it offers courses to M.P.H. candidates, who wish to do intensive work in the field of health education, and expect to work as health educators in governmental, non-governmental and international health agencies in school health programs, including college and university levels, and agricultural and industrial health extension programs. In addition to lectures and seminars, the courses provide experience in health education procedures, school health education, community organization, media of communication, investigation and report writing; (2), it offers general courses in health education to students in the B.S. degree program in Environmental Health, the Diploma Program in Public Health Nursing, and the Post Basic Certificate Program in Midwifery. The objective of such courses is to introduce trainees to basic principles and procedures in health education and to integrate them with their future activities.

CHP **105** *Introduction to Public Health Education* (C. Midwifery). 1.2; 2 cr; first semester.

CHP **108** *Introduction to Audio-Visual Aids* (C. Midwifery). 1.3; 2 cr; first semester.

CHP **209** *Public Health Education* (B.S. EH and Diploma PHN). 1.2; 2 cr; first semester.

CHP **305** *Problems in Health Education* (M.P.H. group core). 2.2; 3 cr; first semester.

CHP **316** *Research Methods in Health Education* (M.P.H. group core). 2.3; 3 cr; second semester.

CHP **318** *School Health Education*. 1.2; 2 cr; second semester.

CHP **320** *Community Organization for Health Education*. 1.2; 2 cr; second semester.

CHP **322** *Audio-Visual Aids in Health Education*. 1.3; 2 cr; second semester.

Public Health Nursing

The Public Health Nursing Program has phased out the Certificate level of study as of October 1971, and is concerned with courses offered to three categories of students: (1) courses to graduate nurses leading to the Diploma in Public Health Nursing. Emphasis is placed on health promotion, the improvement of health and social conditions within the context of the family and community, the prevention of illness and disability, follow-up and restorative care. Candidates admitted to this Program are expected to serve as staff nurses and to occupy key posts in a generalized public health program. In addition to theoretical and practical teaching during the academic year, they receive eight weeks of supervised summer field training. The latter includes experience in administration, supervision, use of audio-visual tools, first aid, and special projects; (2) elective courses are offered to holders of the B.S. degree in Nursing admitted to the M.P.H. Program, in order to provide them with advanced theory and experience in the field of public health nursing; (3) courses offered to Basic Nursing students (B.S. and Diploma Program year III).

CHP **201** *Community Nursing* (Dip. Basic Nursing). 2.0; 2 cr; first semester.

CHP **204** *Nutrition in Public Health*. 2.1; 2 cr; second semester.

CHP **205** *Growth and Development*. 1.2; 2 cr; first semester.

CHP **206** *Community Health Nursing* (B.S. Basic Nursing). 3.10; 8 cr; second semester.

CHP **207** *Public Health Nursing I.* 2. 3; 3 cr; first semester.

CHP **208** *Public Health Nursing II.* 2.6; 5 cr; second semester.

CHP **210** *Public Health Nursing Teaching Functions.* 1.2; 2 cr; second semester.

CHP **324** *Communication Skills in Health Nursing* (M.P.H. elective). 1.2; 2 cr; second semester.

CHP **326** *Advanced Field Practice in Public Health Nursing* (M.P.H. elective). 2.4; 2 cr; second semester.

Midwifery Program

The Midwifery Program was established in 1971-72 as part of a WHO-UNICEF-AUB - sponsored Regional Training Program in Child Health and Midwifery. Its aim is to prepare graduate midwives to teach in schools of midwifery and to administer midwifery services, with particular emphasis on the role of the midwife in relation to the total needs of the maternal and child health program. A total of 15 candidates are recruited each year by the Regional Office of the World Health Organization upon the recommendation of governments in various countries of the Middle East. Final acceptance requires the approval of the Department and the School Admissions Committee. Teaching cost and stipends are covered by UNICEF. Courses offered by the program lead to the Certificate in Post Basic Midwifery. In addition to theoretical and practical teaching during the academic year, students receive eight weeks of supervised summer field training.

CHP **101** *Midwifery I.* 3.4; 5 cr; first semester.

CHP **102** *Midwifery II.* 3.4; 5 cr; second semester.

CHP **103** *Fundamentals of Nutrition.* 2.2; 3 cr; first semester.

CHP **104** *Introduction to Principles and Methods of Teaching.* 3.1; 3 cr; second semester.

CHP **106** *Orientation to Community Health Problems.* 2. 0; 2 cr; second semester.

DEPARTMENT OF ENVIRONMENTAL HEALTH

Chairman : Acra, A.

Professors : Ibrahim, J; Merchant, N.

Lecturer : Abu Zeid, E.

Instructor : Milki, R.

The Department of Environmental Health offers a three-year Program in Environmental Health leading to the B.S. degree. This curriculum provides a broad education in basic sciences and a fundamental knowledge in environmental health. Emphasis is placed on valuation and control of major environmental health problems in developing countries in such fields as water supplies, waste disposal, food hygiene, occupational health, radiation protection, air and marine pollution and control of disease vectors. Students in this Program are also required to take Public Health courses in the fields of Epidemiology, Biostatistics, Administration and Public Health Education.

Developing countries are in great need of qualified personnel capable of planning and implementing programs for the improvement of the human environment. This provides great opportunities for graduates of this Program.

The Department offers courses which are required of students in the M.P.H.

Program of the School of Public Health and cooperates with the Department of Civil Engineering of the Faculty of Engineering and Architecture by offering three courses required of candidates for the M.S. degree in Sanitary Engineering.

In view of the increasing interest in development and its impact on the human environment, a variety of courses offered by this Department is made available for students in other fields.

- EH **101** *General Science.* 3.2; 4 cr.
- EH **202** *Introduction to Environmental Health.* 1.2; 2 cr.
- EH **203** *Food Hygiene.* 2.3; 3 cr.
- EH **204** *General Sanitation.* 2.3; 3 cr.
- EH **205** *Water and Sewage.* 2.3; 3 cr.
- EH **207** *Industrial Health.* 2.3; 3 cr.
- EH **209** *Sanitary Analysis of Water and Sewage.* 2.3; 3 cr.
- EH **295** *Environmental Health Project.* Credit hours variable.
- EH **302** *Elements of Environmental Health.* 2.3; 3 cr.
- EH **304** *Water and Wastes.* 3.3; 4 cr.
- EH **306** *Milk Sanitation.* 2.3; 3 cr.
- EH **308** *Special Projects of Interest to the Student.* Tutorial (up to 2 cr).
- EH **351** *Sanitary Chemistry and Biology.* 2.0; 2 cr.
- EH **353** *Analytical Methods in Sanitary Chemistry and Biology.* 2.3; 3 cr.
- EH **358** *Chemistry and Biology of Water Treatment Processes.* 2.3; 3 cr.

DEPARTMENT OF EPIDEMIOLOGY AND BIostatISTICS

Chairman : Azar, J.

Professors : Churchill, C.; Abou-Daoud, K.

Instructor : Zurayk, H.

Senior Research Assistant : Lorfing, I.

Research Assistants : Nasser, S.; Shedid, H.

The Department of Epidemiology and Biostatistics offers courses in epidemiology and biostatistics to students in the Schools of Public Health and Medicine. Some students from the School of Nursing and the School of Agriculture take course EB 204 *Introductory Biostatistics*. EB 303 *Biostatistics I* is attended by graduate students in Sanitary Engineering. Another course, EB 305 *Introduction to Biostatistics*, is offered to graduate students in Tropical Health. While one course in epidemiology and one in biostatistics are available at the undergraduate level, the major offerings of the Department in the School of Public Health are in the form of core and elective courses to graduate students following the M.P.H. Program. The teaching of preventive medicine and public health in the School of Medicine and the teaching of courses in the behavioral sciences in the School of Public Health are coordinated by members of the Department. Interested students in the field of epidemiology may apply for the Master of Science degree (M.S.) in Epidemiology.

- EB **202** *Introduction to Epidemiology.* 1.2; 2 cr.
- EB **204** *Introductory Biostatistics.* 1.2; 2 cr.
- EB **206** *Descriptive Statistics.* ½.1; 1 cr.

- EB **225** *Medical Statistics*. 1.2; 2 cr.
 EB **226** *Epidemiology*. 1.2; 2 cr.
 EB **267** *Clerkship in Preventive Medicine and Public Health*. 2 weeks (70 hrs).
 EB **301** *Principles of Epidemiology*. 2.2; 3 cr.
 EB **302** *Epidemiology of Infectious Disease*. 1.2; 2 cr.
 EB **303** *Biostatistics I*. 2.3; 3 cr.
 EB **304** *Epidemiology of Non-Infectious Disease*. 1.2; 2 cr.
 EB **305** *Introduction to Biostatistics*. 1.2; 2 cr.
 EB **306** *Prevention, Control and Eradication of Disease*. 1.2; 2 cr.
 EB **308** *Biostatistics II*. 1.3; 2 cr.
 EB **310** *Public Health Statistics*. 1.3; 2 cr.
 EB **312** *Demography*. 1.2; 2 cr.
 EB **314** *Computers and Computer Programming*. 1.2; 1 cr.
 EB **316** *Tutorial*. Up to 2 cr.
 EB **330** *Epidemiology of Zoonoses*. 1.2; 2 cr.
 EB **366** *Statistical Methods in Epidemiology*. 2.2; 3 cr.
 EB **380** *Journal Club I*. 1.0; 1 cr.
 EB **381** *Journal Club II*. 1.0; 1 cr.
 EB **390** *Directed Reading and Research*. Credit hours variable.
 EB **395** *Project in Public Health I*. Credit hours variable.
 EB **396** *Project in Public Health II*. Credit hours variable.
 EB **399** *M.P.H. Thesis*. Credit hours variable.

DEPARTMENT OF PUBLIC HEALTH ADMINISTRATION

Chairman : Rifka, G.

Professor : Haddad, N.

Lecturers : Dajani, S.; Hayek, E.; Khouri, Y.; Sharif, M.

The Department offers courses in Public Health Administration separately at degree, diploma and certificate levels within the School. Courses in the same subject are also offered to the Schools of Medicine, Pharmacy, and Nursing. Emphasis is placed on public health principles, objectives, personnel, planning and programs, as well as on health problems at national and international levels.

Elective courses are also provided by the Department to students in the M.P.H. Program, including medical care administration, health planning, hospital administration, and a tutorial.

In addition to its teaching work, the Department carries out research in several areas including medical care, manpower development, and evaluation of health services. It offers advisory services to the Lebanese Ministry of Public Health and to other official and voluntary health agencies. Consultative services are also made available to international agencies, particularly to the World Health Organization.

The Department is directly involved in supervising and operating the Social Health Center in Ras Beirut, in close collaboration with the Lebanese Public Health

Association and the Beirut City Health Department. This urban center is utilized for field training of students from the Schools of Public Health, Medicine, and Nursing. It also offers health services to the neighboring community and serves as a Demonstration Health Center.

PHA **201** *Public Health Administration*. 1.2; 2 cr.

PHA **204** *Elective Internship in Medical Care* (for up to four months, for Medicine V students).

PHA **206** *Social and Preventive Medicine* (Medicine I students). 2.4; 4 cr.

PHA **301** *Public Health Administration*. 2.2; 3 cr.

PHA **302** *Health Planning*. 1.2; 2 cr.

PHA **304** *Introduction to Hospital Administration*. 1.2; 2 cr.

PHA **306** *Medical Care Administration*. 1.2; 2 cr.

PHA **308** *Tutorial (Special project)*. Up to 2 credits.

PHA **310** *Public Health* (Pharmacy students). 1.0; 1 cr.

DEPARTMENT OF TROPICAL HEALTH

Chairman : Stephen, L.

Professors : Edeson, J. ; Sweatman, G. ; Frayha, G.

Lecturer : Mourad, S.

Instructor : Koussa, M.

The Department of Tropical Health offers courses in helminthology, protozoology, general parasitology, medical and veterinary entomology, mycology, microbiology, the physiology of parasites, acarology, biomedical research methods and parasitological methods to nurses, laboratory technicians, B.S. and B.S. (Pharm.), Medicine II, M.P.H. students and M.S. graduate students.

In addition to the above fields of study, courses are offered to medical, veterinary and dental graduates studying for the M.P.H. degree, in tropical hygiene, medical entomology, tropical nutrition and tropical dermatology.

Most courses consist of lectures and practical laboratory sessions.

Nurses and laboratory technicians are normally enrolled in the Schools of Nursing and Public Health respectively. B.S. students other than Pharmacy students must have a satisfactory background in biology before they can be accepted.

M.P.H. candidates must be accepted by the Admissions Committee of the School of Public Health, and be in possession of a recognized medical degree, or equivalent, for acceptance in certain courses offered.

The following courses are offered to the groups indicated :

A. Nurses

TH **102** *Parasitology and Mycology for Nursing*. 1½.0; 1 cr; first semester.

B. Laboratory Technicians

TH **103** *Parasitology Techniques I*. 1.2; 2 cr; first semester.

TH **104** *Parasitology Techniques II*. 1.2; 2 cr; second semester.

C. School of Public Health (Sanitarians, etc.)

TH **201** *Introduction to Microbiology and Parasitology.* 2.1 ; 2 cr ; first semester.

D. Bachelor of Science and B.S. (Pharm.) Students

TH **204** *Parasitology.* 3.2 ; 4 cr ; second semester.

E. Second Year Medical Students

TH **225** *Medical Parasitology and Mycology.* 2. 3 ½ ; 3 cr ; first semester.

F. Master of Public Health Students

(a) Non-medically qualified.

TH **302** *Introductory Microbiology and Parasitology.* 2.3 ; 3 cr ; second semester.

(b) Medically qualified, and equivalent.

TH **301** *Public Health Microbiology and Animal Agents of Disease.* 2.3 ; 3 cr ; first semester.

TH **304** *Medical Entomology.* 2.3 ; 3 cr ; second semester.

TH **306** *Tropical Hygiene.* 2.2 ; 3 cr ; second semester.

TH **308** *Tropical Dermatology.* 1.2 ; 2 cr ; second semester.

TH **310** *Tropical Nutrition.* 1.2 ; 2 cr ; second semester.

G. Master of Science (M.S.) Program

Students holding a Bachelor of Science degree with an adequate background in biological subjects and with a cumulative average of 80 in the major may apply for admission to the M.S. program in the Department. Exceptionally, students whose average falls between 75 and 79 may be considered for admission *on probation*. Final decision for entrance rests with the Graduate Committee of the Faculties of Medical Sciences.

The program normally requires two full years (11 months each) for a student to graduate, and involves the acquisition of a number of skills; the development of a critical and scholarly approach to problems; and demonstration of ability to complete a laboratory research project and write a thesis in acceptable scientific form.

The following courses are offered by the Department, but students are encouraged to take courses in other Departments and Faculties such as Anatomy, Physiology, Biochemistry, Biology and Agricultural Sciences, depending on their requirements and field of interest. Courses 351, 352, 354, 360 and 361 are given when a suitable number of students elect to take them.

TH **331** *Biology of Protozoa.* 2.3 ; 3 cr ; alternate years, first semester.

TH **332** *Biology of Parasitic Helminths.* 3.4 ; 5 cr ; alternate years, first semester.

TH **350** *Biomedical Research Methods.* 1.2 ; 2 cr ; alternate years, second semester.

TH **351** *Parasitological Methods I.* 1.2 ; 2 cr.

TH **352** *Parasitological Methods II.* 1.2 ; 2 cr.

TH **354** *Physiology and Biochemistry of Parasites.* 2.2 ; 3 cr.

TH **360** *Medical Zoology.* 1.2 ; 2 cr.

TH **361** *Acarology.* 2.3 ; 3 cr.

TH **364** *Medical and Veterinary Entomology*. 2.4; 4 cr; alternate years, second semester.

TH **380** *Journal Club I*. 1.0; 1 cr.

TH **381** *Journal Club II*. 1.0; 1 cr.

TH **390** *Directed Reading and Research*. Credit hours variable.

TH **399** *M.S. Thesis*. Credit hours variable.

COURSES TAUGHT IN OTHER FACULTIES AND SCHOOLS

FACULTY OF ARTS AND SCIENCES

Arabic **101** and **102** *Studies in Arabic Language and Literature*. 3.0; 3 cr; annually.

Biology **201** and **202** *General Biology*. 3.3; 4 cr; two semesters.

Biology **272** *Entomology*. 2.4; 4 cr.

Chemistry **101** and **102** *General Chemistry*. 3.3; 4 cr; two semesters.

Chemistry **201** *Chemical Principles I*. 3.4; 5 cr.

Chemistry **211** and **212** *Organic Chemistry I and II*. 3.0; 3 cr each course.

Chemistry **213** *Organic Chemistry Laboratory*. 1.8; 4 cr.

Economics **203** *Survey of Economics*. 3.0; 3 cr.

English **103** and **104** *English Communication Skills*. 3.2; 4 cr each course.

English **201** *Advanced English Communication Skills*. 3.0; 3 cr.

English **202** *English Communication Skills for Graduate Students*. 3; 0 cr.

Mathematics **101** *Introductory College Mathematics*. 3.0; 3 cr.

Mathematics **102** *Calculus and Analytic Geometry I*. 4.0; 4 cr.

Physical Education **001** and **002** *Freshman Athletics*. 0.2; 0 cr.

Physical Education **003** and **004** *Physical Education for Women*. 0.2; 0 cr.

Physics **103** *General Physics I*. 3.3; 4 cr.

Physics **204** *General Physics II*. 3.3; 4 cr.

Political Studies **201** *Introduction to Political Studies and Public Administration*. 3.0; 3 cr.

Psychology **201** *General Psychology*. 3.0; 3 cr.

Sociology and Anthropology **201** *Introduction to Sociology*. 3.0; 3 cr.

Sociology and Anthropology **272** *Cultural Change*. 3.0; 3 cr.

SCHOOL OF MEDICINE

Bacteriology and Virology **15** *Bacteriological Technique I*. 2.4; 4 cr.

Bacteriology and Virology **16** *Bacteriological Technique II*. 2.6; 5 cr.

Bacteriology and Virology **248** *Medical Microbiology*. 3.4; 5 cr.

Clinical Pathology **11** and **12** *Clinical Chemistry I and II*. 2.4; 4 cr. each course.

Clinical Pathology **17** and **18** *Clinical Pathology I and II*. 1.3; 2 cr each course.

SCHOOL OF PHARMACY

Pharmacognosy **248** *Pesticides*. 1.0; 1 cr.



Faculty of
ENGINEERING
and
ARCHITECTURE

FACULTY OF ENGINEERING AND ARCHITECTURE

Faculty List 1971-1972

- Raymond S. Ghosn, M.S., M. Arch. ; *Professor of Architecture, Dean.*
Jack I. Hanania, Ph.D. + ; *Professor of Engineering, Associate Dean.*
Robert W. Sloane, Ph.D. ; *Professor of Engineering Sciences, Assistant Dean.*
Farid Amin Fuleihan, B.B.A. ; *Registrar.*

PROFESSORS EMERITI

- Weidner, C. Ken - F.A.S.C.E., M.A.S.M.E., S.M.I.E.E.E. ; *Emeritus Dean.*
Hope, Edward S. — M.S., Massachusetts Institute of Technology; Ed.D., Columbia University ; *Emeritus Professor of Civil Engineering.*
Yeremian, Khosrof K. — B.A. (Civil Eng'g), American University of Beirut ; B.Sc., Lafayette College ; *Emeritus Professor of Architectural Engineering.*

PROFESSORS

- *Deeb, Sulayman D. — Ph.D., Birmingham University ; A.M.I.M.E. ; *Mechanical Engineering.*
*Ghosn, Raymond S. — M.S., M.Arch., Massachusetts Institute of Technology ; *Architecture.*
*Hanania, Jack I. + — D.L.C., Loughborough College ; Ph.D., University of Leeds ; M.I.E.E. ; *Electrical Engineering.*
*Iliya, Raja A. — M.S., Ph.D., University of Texas ; *Civil Engineering.*
*Kano, Kanaan A. — M.S., University of Illinois ; D.Eng., Yale University ; *Electrical Engineering.*
Malouf, Khalil M. — D.I.C., Imperial College of Science and Technology, London ; Ph.D., University of London ; *Civil Engineering (Associate of the Faculty of Engineering and Architecture - Part-time).*
*Manasseh, Nicolas E. — M.E., University of California ; *Civil Engineering, Professor in charge of Post-degree Programs.*
Nasser, Essam A. — Dip. Ing. Dv. Ing., Technische Universität, West Berlin ; *Electrical Engineering.*
Nasser, Jack - Ingénieur Docteur, University of Paris (Sorbonne) ; *Civil Engineering (Part-time).*
*Sloane, Robert W. — M.A., Ph.D., University of Glasgow ; F.I.E.E. ; *Engineering Sciences.*

ASSOCIATE PROFESSORS

- Abboud-Klink, Sami — M.C.E., M.S., Ph.D., Rensselaer Polytechnic Institute ; *Civil Engineering.*
Abdul-Baki, Assad F. — Ph.D., Oklahoma State University ; *Civil Engineering.*

* On Tenure Appointment.

+ On Furlough or Leave.

Abi-Rached, George H. — B.Sc., Fuad I University, Cairo; *Mechanical Engineering* (Part-time).

*Avedissian, Yeghishe M. — M.S., Ph.D., Purdue University; *Civil Engineering*.

*Azoury, Pierre H. — Associate, Royal Technical College, Glasgow; D.I.C., Imperial College of Science and Technology, London; Ph.D., University of London; *Mechanical Engineering*.

Chahine, Moustafa T. — M.S. University of Washington; Ph.D., University of California; *Mechanical Engineering*.

*Contavelis, George N. — M. Arch., University of Texas; *Architecture*.

*Inglessis, Constantine J. — M.S., Colorado State University; *Civil Engineering*.

*Jouzy, Neddy S. — M.S., Ph.D., Purdue University; *Civil Engineering*.

Kalayan, Haroutune Y. — B.S., American University of Beirut; *Civil Engineering* (Part-time).

al-Khatib, Mounir N. — M.S., University of Michigan; *Civil Engineering* (Part-time).

al-Khuri, Samir K.— M.S., Lehigh University; *Civil Engineering* (Associate of the Faculty of Engineering and Architecture - Part-time).

*Kuran, Albert A. + — M.E., Yale University; *Mechanical Engineering*.

*Madany, Henry M. — Ph.D., Queen's University, Belfast; M.I.E.E.; *Electrical Engineering*.

*Makhlouf, Hanna M. +—Ph.D., Carnegie Institute of Technology; *Civil Engineering*.

*Regier, Frank A. — M.S., University of California; Ph.D., Yale University; *Electrical Engineering*.

Sabah, Nassir H. — M.S., University of Birmingham; Ph.D., State University of New York at Buffalo; *Electrical Engineering*.

*Sakkal, Fateh, M. — Ph.D., Manchester University; A.M.I.M.E.; *Mechanical Engineering*.

Salaam, Assem A.—B.A., Arch., Cambridge University; *Architecture* (Part-time).

Yarid, Anis A. — M.S., University of Texas; *Civil Engineering* (Part-time).

SENIOR LECTURERS

Alami, Zuheir Y. — Ph.D., University of Texas; *Civil Engineering*.

Papazian, Hratch S. — Ph.D., Ohio State University; *Civil Engineering*.

ASSISTANT PROFESSORS

Ayoub, George M. — Ph.D., University of London; *Civil Engineering*.

Clumpner, Joseph A. — S.M., Massachusetts Institute of Technology; Ph.D., Yale University; *Mechanical Engineering*.

Khairallah, Samir H. — B.A.Arch., University of California; *Architecture* (Part-time).

* On Tenure Appointment.

+ On Furlough or Leave.

- Khoury, Kamal E. + — B.S., American University of Beirut; *Civil Engineering* (Part-time).
- Khoury, Theodore F. — A.R.I.C.S., Royal Institute of Chartered Surveyors; *Civil Engineering* (Part-time).
- Khoury, Shahwan V. — Ph.D., Carnegie Institute of Technology; *Electrical Engineering*.
- McGlothlin, Gerald E. — Ph.D., Arizona State University; *Electrical Engineering*.
- Mukaddam, Mohammad A. — M.S., Ph.D., University of California; *Civil Engineering*.
- Ragette, Friedrich R. + — Dip. Ingenieur-Architect, Technische Hochschule, Vienna; *Architecture*.
- Searle, Terence R. — M.Sc., Birmingham University; *Civil Engineering*.
- Seeger, John A. — Ph.D., Ohio State University; *Electrical Engineering*.
- Sfeir, Abdallah A. — Ingénieur, E.T.A.C.A., Paris; Ph.D., University of California; *Mechanical Engineering*.
- Shuraym, George P. — M.S., Ph.D., North Western University; *Electrical Engineering*.

LECTURERS

- Chaiban, Claude C. — Licence en Droit Libanais, Université Saint Joseph, Beirut; Licence en Droit, Dip. d'Études Supérieures, Docteur en Droit, University of Lyon; *Engineering Law* (Part-time).
- Hadidian, John P. — B.A.Arch., University of California; *Architecture*.
- al-Khalil, Ali Y. — Ph.D., American University, Washington, D.C.; *Cultural Development*.
- Khoury, Khalil E. — Dip. d'Architecture, Académie Libanaise des Beaux-Arts; *Architectural Presentation* (Part-time).
- Kirkwood, Grace H. — M.A. in Landscape Architecture, Smith College; *Landscape Design* (Honorary Lecturer - Part-time).
- Klat, Samir R. — A.C.G.I., D.I.C., Ph.D., Imperial College of Science and Technology, London; *Mechanical Engineering* (Part-time).
- Moussalli, Simon-Pierre — B.Arch.Eng., American University of Beirut; Dip. d'Urbanisme, Université de Paris; *Urban Design* (Part-time).
- Shammas, Nazih Kh. — M.S.S.E., University of North Carolina; Ph.D., University of Michigan; *Civil Engineering*.

INSTRUCTORS

- Hawa, Nur Abdu — Dip., College of Aeronautical Engineering, London; M.I. Prod.E.; *Mechanical Engineering*.
- Khoury, Toni N. — B.A.Arch., Pratt Institute; *Architecture* (Part-time).
- Kul-Sahagian, Raweh — B.E., American University of Beirut; *Electrical Engineering*.
- Mahmassani, Malik — M.Arch., University of Pennsylvania; *Architecture* (Part-time).

+ On Furlough or Leave.

Yeremian, Viken K. — M.Arch., University of California, Berkeley; *Architecture* (Part-time).

ASSISTANT INSTRUCTOR

Khalaf, Robert F. — Dip. Topographie Générale, Mouthany Commercial and Technical Institute, Beirut; *Mechanical Engineering*.

General Information

As early as 1913 the University recognized the need for engineering education and training in the Arab East and courses were offered in the School of Arts and Sciences. By 1944, sufficient additional courses had been added to permit the granting of the degree of Bachelor of Science in Civil Engineering. The last class in this program graduated in June 1954. In 1951 a separate School of Engineering was established and curricula were initiated in Civil Engineering, Mechanical Engineering, Electrical Engineering and Architectural Engineering. The years 1951-1954 were a transitional period of continuous development toward the new curricula, established in 1954. In 1963, a program leading to the degree of Bachelor of Architecture was introduced, replacing the Bachelor of Architectural Engineering program, the last class of which graduated in June 1966. In 1966, the Faculty of Engineering was renamed the Faculty of Engineering and Architecture.

The engineering curricula evolved from 1954, without any major change in structure, until October 1970 when new curricula were introduced for students entering Term I. The last class following the old curricula will graduate in 1973. In the new curricula, there is an increase in the number of courses in pure sciences and, in keeping with the development of the profession in the area, students choose their major subject earlier and concentrate more on that subject.

The objective of the Faculty of Engineering and Architecture is to graduate well-qualified engineers and architects who have received a modern engineering or architectural education at the highest standards, and who at the same time have particular knowledge of and training in the needs and problems of the Middle East. In addition to these technical qualifications every effort is made to present and instil the ideals of honesty, personal integrity and service to mankind. Degrees in Engineering are granted only after the student publicly subscribes to the ideals of the profession as set forth in its oath and canons of ethics.

The Faculty reserves the right to make such changes in the curriculum, course contents and regulations as it may deem appropriate and without prior notice.

The Faculty of Engineering and Architecture offers programs of study leading to the degree of Bachelor of Engineering (B.E.) with majors in Civil Engineering, Electrical Engineering or Mechanical Engineering, the degree of Bachelor of Architecture (B. Arch.), the degree of Master of Engineering (M.E.) with majors in Civil Engineering, Electrical Engineering, Mechanical Engineering or Sanitary Engineering. A program leading to the degree of Master of Architecture (M.Arch.) in Urban Planning and Design will be introduced in the near future.

The curriculum for the degree of Bachelor of Engineering is divided into 11 terms (8 16-week semesters and 3 10-week summer terms), totalling 158 weeks. This is equivalent to 5 academic years, but is completed in 4 calendar years. For the degree of Bachelor of Architecture, the curriculum occupies 14 terms (10 16-week semesters and 4 10-week summer terms). This total of 200 weeks is equivalent to 6 academic years, but is completed in 5 calendar years because the summers are used.

There is a short break after each term and a one-month vacation between Summer and Fall Terms.

Classes are designated by their year of graduation. In order to develop the total personality of the Engineering and Architecture student, the Faculty provides for a wide variety of extra-curricular activities, participation in which is greatly encouraged. Also, students in Terms I and II are required to take part in a physical development program and, within the curriculum, there is a sequence of courses designed to broaden the student's cultural interests.

Regulations for graduate students follow the undergraduate regulations and curricula. General requirements for graduate study are found in the special chapter at the end of this catalogue entitled Graduate Study.

ADMISSION

For complete and detailed information regarding admission to the University, including certificates recognized, see pages 17 to 27 in the section on Admissions at the beginning of the catalogue. All candidates for admission to the Faculty of Engineering and Architecture must have satisfied University entrance requirements, including proficiency in the English language.

To be eligible for admission to First Year of the Faculty of Engineering and Architecture a student must have completed the pre-professional educational requirements of his country and must have completed the Freshman Science program, including chemistry, mathematics and physics, in the Faculty of Arts and Sciences of this University or a program recognized as equivalent.

Lebanese candidates must hold the Lebanese Baccalaureate, Part II (Mathematics) or its legal equivalent. For Architecture, the Baccalaureate, Part II (Mathematics or Experimental Science) is acceptable. Candidates with a Baccalaureate, Part II (Philosophy) may be considered for admission to the Architecture program after they have completed the Freshman Science year.

Detailed requirements for admission *directly* to First Year Engineering and Architecture are found on pages 23 to 24.

To be accepted, a candidate must satisfy the Faculty of Engineering and Architecture on personal as well as academic grounds.

GRADUATION REQUIREMENTS

To be eligible for graduation with the degree of Bachelor of Engineering or the degree of Bachelor of Architecture a student must have passed all the courses assigned, must have satisfied promotion requirements in every term, and the same requirements for the final term, including the removal of any probation, and must have satisfied the Faculty as to the adequacy of his professional development. Engineering students must also have taken the Undergraduate Record Examination.

Students who have completed the Fall and Spring terms of the last two years with a general average of 85 or above may be recommended by the Faculty for graduation *with distinction*, but are not necessarily so recommended.

ACADEMIC RULES AND REGULATIONS

Grades

1. In the Faculty of Engineering and Architecture the following grading system is used: 90-100 Excellent; 80-89 Good; 70-79 Fair; 60-69 Weak; below 60 Failing;

I Incomplete ; W, Withdrew ; S Satisfactory ; WF Withdrew Failed.

2. WF (Withdrew Failed) will be counted as 40 for the purpose of averaging and will be recorded if (1) the student fails to take the final examination without a valid excuse, or (2) absences, excused or unexcused, exceed one third of the sessions of a course, or (3) an unexcused absence occurs after two warnings for absences.

3. A student must complete the program of required courses for which he registers at the beginning of any term. If he withdraws from the program without permission, all courses are recorded as failures and the student cannot be readmitted. If, for medical reasons, a student is given permission to withdraw from the program, the record will show "withdrew". If the withdrawal is not for medical reasons, and permission to withdraw from the program is given, the record will show "withdrew" in those courses where his work up to that time is passing, and "withdrew failed" in those courses where it is failing. No applications for withdrawal will be considered within two weeks from the start of final examinations, except for medical reasons. In the case of an elective course, or a course taken in addition to the required program, a student may be given permission to withdraw from the course; and the record will show "withdrew" or "withdrew failed" depending on whether his work up to that time is passing or failing. Students are not allowed to withdraw from a course within two weeks from the start of final examinations.

4. A student who is absent from a quiz without a valid excuse will be given zero for that quiz.

5. The term average in per cent will be computed at the end of each term for all the required courses covered during that term.

To be placed on the Dean's Honor List, a student must: (a) have been promoted with no failures or probation; (b) have carried at least three quarters of the full-term load and not have been repeating the term; and (c) either (1) have a minimum term average of 85, or (2) have a minimum term average of 80 provided he ranked in the approximate top 10% of his engineering or departmental class.

Engineering Honors are awarded to students who in addition to maintaining high academic standing have also exhibited a broad and active interest and participation in student and community activities.

Promotions and Failures

1. To be promoted clear, a student must meet all the following requirements:

(a) Attain a term average of at least 70.

(b) Beginning with Term IV, attain in each term an average of the grades in courses in his major Department of at least 70. In the case of students of Architecture, the requirement is a grade of at least 70 in Architectural Design in each term.

(c) Have no failures.

2. A student who does not fulfill one or both of conditions 1 (a) and 1 (b) will not be promoted.

3. A student who fulfills both conditions 1 (a) and 1 (b) but has *one* failure may be promoted on probation.

4. A student who has two or more failures in one term will not be promoted.

5. A student in Engineering in terms I to V, or a student in Architecture in terms I to III, who incurs a failure in one term following another failure in the preceding term will be required to repeat the two terms.

A student in Engineering in terms VI to XI, or a student in Architecture in terms IV

to XIV, who incurs a failure in one term following another failure in the preceding term will be required to repeat the two terms if the two courses failed are from among the courses considered relevant to his major.

6. Promotion from term I to II may be allowed with a minimum average of 65 if a student has no failures and is not repeating the term.

7. A student who has not been promoted at the end of term II and has been allowed to repeat, must repeat both terms I and II.

8. Failure in a course must be made up by repeating the course when next offered.

9. If a student is not promoted, he may be allowed to repeat the term provided he has attained a term average of at least 60. In repeating the failed term, he may be exempted from repeating those Cultural Sequence courses in which he had attained a grade of 70 or more, and any other courses in which he had attained a grade of 75 or more.

10. A student may not repeat a course or a term more than once and may not repeat more than two terms while attending this School except that repetition of two consecutive terms (under the stipulations of paragraphs 5 or 7) will be considered as repetition of one term.

11. If a student is not promoted and is not allowed to repeat one or more terms, he will be automatically dropped from the Faculty for poor academic record.

GRADUATE STUDY

The Faculty of Engineering and Architecture offers programs of graduate study leading to the degree of Master of Engineering with majors in Civil Engineering, Electrical Engineering, Mechanical Engineering or Sanitary Engineering.

Aim

The programs were established in order to help meet the growing need for advanced engineering education in this part of the world.

The basic scientific requirements are those demanded in the U.S.A. and Europe with emphasis upon the problems and developments which are faced in this area. Studies can be illustrated by examples near at hand and research may be directed towards the solution of problems within the region.

Requirements

The requirements for the degree of Master of Engineering are those set out for the Master's degree in the special chapter at the end of this Catalogue entitled Graduate Study, with the following interpretations or additions:

- (a) the grades which are averaged for the admission requirement are the grades of all courses in the applicant's last two undergraduate years;
- (b) a student admitted on probation must register for and complete a minimum of six credits in his first term and must attain an average of 80 in all the work of his first term;
- (c) the course work required is a minimum of 24 credits;
- (d) the restriction on the number of credits which may be transferred from another institution does not apply to students in the Exchange Program with the University of Pittsburgh.

Curricula and Courses

Under each Department are shown :

- (a) Teaching staff ;
- (b) Curricula ;
- (c) Undergraduate courses : (I) of new curriculum ; (II) of old curricula ;
- (d) Graduate courses.

With the introduction of new curricula the following course numbering system was adopted :

Each course number is prefixed by the initials of the Department. Two pairs of digits follow. The first pair indicates the term. Of the second pair, the first digit indicates the sequence and the second the number of the course in the sequence, e.g. : A 07 63 is offered by the Department of Architecture and is the third course in sequence 6 which is concerned with Construction.

Exceptions are :

- (a) CE courses with five-digit numbers. The additional digit, a 1, indicates that the course, though offered by the Department of Civil Engineering, is for Architecture students.
- (b) Courses designated ET. These are Shop courses. The number is simply a serial number. The term is not indicated because different students take these courses in different terms. Descriptions of ET courses will be found listed between the "new" and the "old" undergraduate courses of the Department of Mechanical Engineering.
- (c) Courses designated AS under the heading Associated Studies. Here too the term varies and is not indicated.

Courses still being given to students following the old curricula have a similar numbering system ; but the prefix for all Departments is E, the first pair of digits indicates the sequence and course number, and the second pair the term.

Detailed course descriptions are available in the individual Departments for those requiring further information.

DEPARTMENT OF ARCHITECTURE

Chairman : Ghosn, R.

Professors : Contavelis, G. ; Khairallah, S. ; Ragette, F. ; Salaam, A.

Lecturers : Hadidian, J. ; Khouri, K. ; Kirkwood, G., Moussalli, S.

Instructors : Khouri, T. ; Mahmassani, M. ; Yeramian, V.

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CURRICULUM FOR THE DEGREE OF BACHELOR OF ARCHITECTURE

Class of 1976 and Hereafter

	Credit Hours
<i>Term I (Fall)</i>	
A 01 11 Perception and Communication I	2
A 01 21 Architectural Communication I	4
A 01 31 Basic Design I	4
Math. 201 Calculus and Analytic Geometry II	4
ET 1 Shop I	1
AS 13 Cultural I (History of Architectural and Engineering Works I)	3
	<u>18</u>
<i>Term II (Spring)</i>	
A 02 12 Perception and Communication II	2
A 02 22 Architectural Communication II	3
A 02 32 Basic Design II	4
A 02 41 Methodology I	2
ET 2 Shop II	2
CE 02 111 Statics	2
AS 14 Cultural II (History of Architectural and Engineering Works II)	3
	<u>18</u>
<i>Term III (Summer)</i>	
CE 03 71 Geodetic Studies	4
A 03 61 Materials	2
Elective ¹	3
	<u>9</u>
<i>Term IV (Fall)</i>	
A 04 13 Perception and Communication III	2
A 04 23 Architectural Communication III	2
A 04 51 Architectural Design I	6
CE 04 121 Mechanics of Materials	3
ET 3 Shop III	1
AS 11 Cultural III (Man's Cultural Evolution I)	3
	<u>17</u>
<i>Term V (Spring)</i>	
A 05 42 Methology II	2
A 05 52 Architectural Design II	6
A 05 62 Building Construction I	3
CE 05 131 Structures I	2
AS 12 Cultural IV (Man's Cultural Evolution II)	3
	<u>16</u>
<i>Term VI (Summer)</i>	
A 06 53 Regional Architecture	6
CE 06 411 Engineering Geology	1
Math. 209 Digital Computer Programming I	1
AS 21 Cultural V (Music Appreciation)	2
	<u>10</u>

1. Elective from Sociology or Painting.

	Credit Hours
<i>Term VII (Fall)</i>	
A 07 43 Methodology III	2
A 07 54 Architectural Design III	6
A 07 63 Building Construction II	3
CE 07 141 Structures II	2
AS 31 Cultural VI : Elective (European Literature <i>or</i> Sociology)	3
	<u>16</u>
<i>Term VIII (Spring)</i>	
A 08 44 Methodology IV	2
A 08 55 Architectural Design IV	6
A 08 71 Environmental Control I	2
CE 08 321 Concrete I	3
AS 15 Cultural VII (History of Art)	3
	<u>16</u>
<i>Term IX (Summer)</i>	
A 09 64 Execution Drawings	10
	<u>10</u>
<i>Term X (Fall)</i>	
A 10 56 Architectural Design V	7
A 10 72 Environmental Control II	3
CE 10 331 Concrete II	2
CE 10 341 Steel	1
A 10 84 Cultural VIII (Evolution of Modern Architecture)	3
	<u>16</u>
<i>Term XI (Spring)</i>	
A 11 45 Methodology V	3
A 11 57 Architectural Design VI	7
A 11 73 Environmental Control III	1
CE 11 431 Soil Mechanics and Foundations	2
AS 41 Engineering Economics	3
	<u>15</u>
<i>Term XII (Summer)</i>	
Approved Professional Practice	
<i>Term XIII (Fall)</i>	
A 13 46 Methodology VI	3
A 13 58 Architectural Design VII (Urban Design)	8
A 13 59 Research for Final Project	—
A 13 74 Environmental Control IV	3
CE 13 151 Structures III	2
	<u>16</u>
<i>Term XIV (Spring)</i>	
A 14 47 Methodology VII	2
A 14 59 Architectural Design VIII	10
A 14 65 Specifications and Quantity Surveying	3
	<u>15</u>

210 - ENGINEERING AND ARCHITECTURE

Class of 1975

	Credit Hours
<i>Term IV (Fall)</i>	
A 04 12 Perception and Communication II	2
A 04 23 Architectural Communication III	2
A 04 51 Architectural Design I	6
A 02 41 Methodology I	2
CE 04 121 Mechanics of Materials	3
AS 13 Cultural III (History of Architectural and Engineering Works I)	3
	<hr/> 18
<i>Term V (Spring)</i>	
A 05 24 Architectural Presentation	2
A 05 42 Methodology II	2
A 05 52 Architectural Design II	6
A 05 62 Building Construction I	3
CE 05 131 Structures I	2
AS 14 Cultural IV (History of Architectural and Engineering Works II)	3
	<hr/> 18
<i>Term VI (Summer)</i>	
A 06 53 Regional Architecture	6
CE 06 411 Engineering Geology	1
AS 21 Cultural V (Music Appreciation)	2
	<hr/> 9
<i>Term VII (Fall)</i>	
A 13 04 Visual Fundamentals I	2
A 07 43 Methodology III	2
A 07 54 Architectural Design III	6
A 07 63 Building Construction II	3
CE 07 141 Structures II	2
AS 31 Cultural VI : Elective (European Literature <i>or</i> Sociology)	3
	<hr/> 18
<i>Term VIII (Spring)</i>	
A 13 05 Visual Fundamentals II	2
A 08 44 Methodology IV	2
A 08 55 Architectural Design IV	6
A 08 71 Environmental Control I	2
CE 08 321 Concrete I	3
AS 15 Cultural VII (History of Art)	3
	<hr/> 18
<i>Term IX (Summer)</i>	
A 09 64 Execution Drawings	10
	<hr/> 10

	Credit Hours
<i>Term X (Fall)</i>	
A 13 07 Visual Fundamentals III	2
A 10 56 Architectural Design V	7
A 10 72 Environmental Control II	3
CE 10 331 Concrete II	2
CE 10 341 Steel	1
A 10 84 Cultural VIII (Evolution of Modern Architecture)	3
	<u>18</u>

<i>Term XI (Spring)</i>	
A 04 13 Perception and Communication III	2
A 11 45 Methodology V	3
A 11 57 Architectural Design VI	7
A 11 73 Environmental Control III	1
CE 11 431 Soil Mechanics and Foundations	2
AS 41 Engineering Economics	3
	<u>18</u>

Term XII (Summer)
Approved Professional Practice

<i>Term XIII (Fall)</i>	
A 13 46 Methodology VI	3
A 13 58 Architectural Design VII	8
A 13 74 Environmental Control IV	3
CE 13 151 Structures III	2
	<u>16</u>

<i>Term XIV (Spring)</i>	
A 14 47 Methodology VII	2
A 14 59 Architectural Design VIII	10
A 14 65 Specifications and Quantity Surveying	3
	<u>15</u>

Class of 1974

<i>Term VII (Fall)</i>	
A 13 07 Visual Fundamentals III	2
A 07 43 Methodology III	2
A 07 54 Architectural Design III	6
A 07 63 Building Construction II	3
CE 07 141 Structures II	2
AS 31 Cultural VI : Elective (European Literature <i>or</i> Sociology)	3
	<u>18</u>

<i>Term VIII (Spring)</i>	
A 02 12 Perception and Communication II	2
A 08 44 Methodology IV	2
A 08 55 Architectural Design IV	6
A 08 71 Environmental Control I	2
CE 08 321 Concrete I	3
AS 15 Cultural VII (History of Art)	3
	<u>18</u>

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	Credit Hours
<i>Term IX (Summer)</i>	
ET 3 Shop III	1
A 09 64 Execution Drawings	10
	<u>11</u>
<i>Term X (Fall)</i>	
A 05 24 Architectural Presentation	2
A 10 56 Architectural Design V	7
A 10 72 Environmental Control II	3
CE 10 331 Concrete II	2
CE 10 341 Steel	1
A 10 84 Cultural VIII (Evolution of Modern Architecture)	3
	<u>18</u>
<i>Term XI (Spring)</i>	
A 04 13 Perception and Communication III	2
A 11 45 Methodology V	3
A 11 57 Architectural Design VI	7
A 11 73 Environmental Control III	1
CE 11 431 Soil Mechanics and Foundations	2
AS 41 Engineering Economics	3
	<u>18</u>
<i>Term XII (Summer)</i>	
Approved Professional Practice	
<i>Term XIII (Fall)</i>	
A 13 46 Methodology VI	3
A 13 58 Architectural Design VII	8
A 13 74 Environmental Control IV	3
CE 13 151 Structures II	2
	<u>16</u>
<i>Term IV (Spring)</i>	
A 14 47 Methodology VII	2
A 14 59 Architectural Design VIII	10
A 14 65 Specifications and Quantity Surveying	3
	<u>15</u>
Classes of 1972 and 1973	
<i>Term X (Fall)</i>	
A 10 10 Architectural Philosophy V	1
A 11 10 Architectural Design V	7
A 12 10 Architectural Graphics V	2
A 14 10 Architectural Presentation IV	1
A 16 10 City Planning	2
A 19 10 Building Construction and Materials III	2
E 20 10 Steel Structures	2
E 42 10 Law and Contracts	3
	<u>20</u>

	Credit Hours
<i>Term XI (Spring)</i>	
A 10 11 Architectural Philosophy VI	1
A 11 11 Architectural Design VI	7
A 18 11 Furniture and Interior Design	3
E 19 11 Introduction to Soil Mechanics and Foundations	3
E 38 11 Electrical Technology	3
E 47 11 Sanitary Engineering	2
	<u>19</u>

Term XII (Summer)
Approved Professional Experience

<i>Term XIII (Fall)</i>	
A 10 13 Architectural Philosophy VII	2
A 11 13 Architectural Design VII	8
A 14 13 Architectural Presentation V	1
A 15 13 Architectural Acoustics	1
A 18 13 Landscape Design	3
A 21 13 Research Towards Final Project	2
E 38 13 Illumination and Electrical Distribution	3
	<u>20</u>

<i>Term XIV (Spring)</i>	
A 10 14 Architectural Philosophy VIII	2
A 11 14 Architectural Design VIII	10
A 17 14 Architectural Professional Practice	1
E 43 14 Engineering Economy	3
E 44 14 Specifications and Quantity Surveying	3
	<u>19</u>

COURSES

A01 11 *Perception and Communication I*, 2 cr. Freehand representation of form in pencil, charcoal, pen and ink.

A01 21 *Architectural Communication I*, 4 cr. Introduction to the different media used for architectural communication : projections, intersections and developments.

A01 31 *Basic Design I*, 4 cr. Exercises in creative form, structure and space. Color, its dynamics and its relationships within two-dimensional organizations. The aim is toward design in general and architectural expressions in particular.

A02 12 *Perception and Communication II*, 2 cr. Continuation of A01 11, with the use of painting and water color.

A02 22 *Architectural Communication II*, 3 cr. Continuation of A01 21, including construction of shades and shadows, perspective, and rendering.

A02 32 *Basic Design II*, 4 cr. Study of and experimentation with the elements of design (points, line, direction, texture, proportion, value) in two-dimensional expression. Experimentation with graphic tools in the integration of these elements in two-dimensional organization.

A02 41 *Methodology I*, 2 cr. Introductory outline course to architectural design principles. Factors that constitute and affect the handling of design elements, and introduction to the principles of programming for architectural problems.

A03 61 *Materials*. 2 cr. Engineering materials. Useful properties, and relationships between properties and molecular, crystalline, grain or fibre structure.

A04 13 *Perception and Communication III*. 2 cr. Sculpture. Study and experimentation with three-dimensional media of expression. Three-dimensional organization : plastic movement and balance equilibrium, proportion, rhythm.

A04 23 *Architectural Communication III*. 2 cr. Continuation of A02 22. Emphasis on rendering and presentation using more than one medium.

A05 24 *Architectural Presentation*. 2 cr. Rendering and presentation using more than one medium.

A04 51 *Architectural Design I*. 6 cr.

A05 42 *Methodology II*. 2 cr. Continuation of A02 41. Emphasis on problems of architectural design for complex buildings.

A05 52 *Architectural Design II*. 6 cr. Introduction into the methods of research. Design of simple building types, with consideration of physical and social surroundings.

A05 62 *Building Construction I*. 3 cr. Lecture and design course. Study of the various elements of the structures of buildings.

A06 53 *Regional Architecture*. 6 cr. Research in the traditional architecture of the area. Students work individually and in teams.

A07 43 *Methodology III*. 2 cr. Landscape design and site planning. Introductory lecture course on principles of design for outdoor spaces either private or public. Historical development.

A07 54 *Architectural Design III*. 6 cr.

A07 63 *Building Construction II*. 3 cr. Lecture and design course. Continuation of A05 62; all remaining elements and finishes of buildings.

A08 44 *Methodology IV*. 2 cr. Lecture course on interior design IV and its historical development, including contemporary expression in furniture design.

A08 55 *Architectural Design IV*. 6 cr.

A08 71 *Environmental Control I*. 2 cr. Fundamentals of sanitary engineering, including public and individual water supply and purification methods ; plumbing and sewer systems ; sewage treatment ; sewage and refuse disposal.

A09 64 *Execution Drawings*. 10 cr. Preparation of a complete set of architectural working drawings following usual office practice.

A10 10 *Architectural Philosophy V*. 1 cr. The process of modern architectural design.

A10 11 *Architectural Philosophy VI*. 1 cr. The architecture of the 20th Century.

A10 13 *Architectural Philosophy VII*. 2 cr. Seminar and panel discussions on architectural history, philosophy and design in related fields.

A10 14 *Architectural Philosophy VIII*. 2 cr. Regional planning and design.

A10 56 *Architectural Design V*. 7 cr. Design course partly on interior architecture and partly on the design of outdoor spaces private or public.

A10 72 *Environmental Control II*. 3 cr. Introduction to the different types of heating, ventilation and air conditioning. Load calculations and psychometrics.

A10 84 *Evolution of Modern Architecture*. 3 cr.

A11 10 *Architectural Design V*. 7 cr. Extension of acquired design experience

to problems of larger scope. One of the problems will serve as material for the work in the following course.

A11 11 *Architectural Design VI*. 7 cr. Preparation of a complete set of architectural working drawings following usual office practice. Short term design problems. Sketch problems.

A11 13 *Architectural Design VII*. 8 cr. Investigation and study of problems in urban design. Students work in teams.

A11 14 *Architectural Design VIII*. 10 cr. Project. Comprehensive studies in the totality of architecture. Programs are selected by the students in consultation with and with the approval of the Faculty.

A11 45 *Methodology V*. 3 cr. History of urban forms and planning. Lectures and seminars on the growth of towns and the planning of new towns from primitive times to the present day, including development of planning theory and urban design.

A11 57 *Architectural Design VI*. 7 cr. Extension of acquired design experience to problems of larger scope.

A11 73 *Environmental Control III*. 1 cr. Architectural acoustics. Acoustical theory, sound reflective and absorptive materials, special sound absorptive construction, principles of room acoustics and noise control, for private and public buildings.

A12 10 *Architectural Graphics V*. 2 cr. Sculpture. Study and experimentation with three-dimensional media of expression. Three-dimensional organization : plastic movement and balance, equilibrium, proportion, rhythm.

A13 04 *Visual Fundamentals I*. 2 cr. Color, its dynamics and its relationships within two-dimensional organizations. The aim of the course is towards design in general and architectural design and expression in particular.

A13 05 *Visual Fundamentals II*. 2 cr. Study of and experimentation with the elements of design in two-dimensional expression. Experimentation with graphic tools in the integration of these elements into two-dimensional organization.

A13 07 *Visual Fundamentals III*. 2 cr. Continuation of A13 05.

A13 46 *Methodology VI*. 3 cr. Introduction to urban planning. Current urban problems. Historical perspective of the planning profession and the planning approach to urban phenomena.

A13 58 *Architectural Design VII*. 8 cr. Investigation and study of problems in urban design. Students work in teams.

A13 59 *Research for Final Project*. 0 cr.

A13 74 *Environmental Control IV*. 3 cr. Principles of electrical technology. Lighting fundamentals and design. Electrical distribution in buildings. Electrical materials and equipment.

A14 10 *Architectural Presentation IV*. 1 cr. Rendering and sketching, using chromatic media.

A14 13 *Architectural Presentation V*. 1 cr. Rendering and presentation using more than one medium.

A14 47 *Methodology VII*. 2 cr. Architectural professional practice. The local practice and organization of the architectural and engineering profession. The architect and the community.

A14 59 *Architectural Design VIII*. 10 cr. Final project. Comprehensive studies in the totality of architecture. Programs are selected by the students in consultation with and with the approval of the Faculty

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A14 65 *Specifications and Quantity Surveying*. 3 cr. Preparation of specifications and bills of quantities for new buildings and architectural engineering and industrial works, including taking off, abstracting, costing and billing.

A15 13 *Architectural Acoustics*. 1 cr. Acoustical theory, sound reflective and absorptive materials, principles of room acoustics and noise control, for private and public buildings.

A16 10 *City Planning*. 2 cr. Study of the development problems of cities. Organization and legal basis for planning. Subdivision of land, zoning regulations. Economic considerations.

A18 11 *Furniture and Interior Design*. 3 cr. Lecture and design course on interior design and its historical development, including contemporary expression in furniture design.

A18 13 *Landscape Design*. 3 cr. Introductory lecture and design course on principles of design for outdoor spaces either private or public.

A19 10 *Building Construction and Architectural Materials III*. 2 cr. Lecture and design course covering interior carpentry, exterior doors and windows in wood, steel or aluminum, curtain walls, fire-places and chimneys, special equipment.

A21 13 *Research Towards Final Project*. 2 cr. In preparation for A11 14. Individual study towards the choice of an architectural subject. Study and research for the design process to follow.

DEPARTMENT OF CIVIL ENGINEERING

Chairman : Iliya, R.

Professors : Abboud-Klink, S. ; Abdul-Baki, A. ; Avedissian, Y. ; Ayoub, G. ; Inglessis, C. ; Jouzy, N. ; Kalayan, H. ; al-Khatib, M. ; Khouri, K. ; Khouri, Th. ; al-Khuri, S. ; Makhlouf, H. ; Malouf, Kh. ; Mukaddam, M. ; Nasser, J. ; Searle, T. ; Shammas, N. ; Yarid, A.

Lecturers : Alami, Z. ; Papazian, H.

CURRICULUM FOR THE DEGREE OF BACHELOR OF ENGINEERING ; MAJOR, CIVIL ENGINEERING

	Credit Hours
<i>Term I (Fall)</i>	
AS 11 Man's Cultural Evolution I	3
CE 01 11 Statics	3
Math. 201 Calculus and Analytic Geometry II	4
ME 01 11 Engineering Drawing	3
Phys. 211 Introductory Physics III	3
	<hr/> 16
<i>Term II (Spring)</i>	
AS 12 Man's Cultural Evolution II	3
Chem. 201 Chemical Principles I	5
ET 1 Shop I	1
Math. 202 Calculus and Analytic Geometry III	4
Math. 209 Digital Computer Programming I	1
ME 02 21 Dynamics	3
	<hr/> 17

ENGINEERING AND ARCHITECTURE - 217

	Credit Hours
<i>Term III (Summer)</i>	
CE 03 71 Geodetic Studies	4
EE 03 71 Electrical Engineering	3
Phys. 212 Introductory Physics IV	3
	<hr/> 10
<i>Term IV (Fall)</i>	
AS 13 History of Architectural and Engineering Works I	3
CE 04 12 Mechanics of Materials	3
CE 04 31 Science of Materials	3
E 13 04 Mathematics III	4
ET 2 Shop II	2
ME 04 31 Thermodynamics I	3
	<hr/> 18
<i>Term V (Spring)</i>	
AS 14 History of Architectural and Engineering Works II	3
CE 05 13 Structures I	3
CE 05 41 Engineering Geology	3
CE 05 51 Fluid Mechanics	4
E 13 05 Mathematics IV	4
	<hr/> 17
<i>Term VI (Summer)</i>	
AS 21 Music Appreciation	2
CE 06 52 Applied Fluid Mechanics	3
CE 06 72 Transportation I	3
	<hr/> 8
<i>Term VII (Fall)</i>	
AS 31 European Literature	3
CE 07 14 Structures II	3
CE 07 32 Concrete I	4
CE 07 53 Hydrology	3
CE 07 61 Sanitary Engineering I	4
	<hr/> 17
<i>Term VIII (Spring)</i>	
AS 41 Elective in the Humanities	3
CE 08 33 Concrete II	4
CE 08 42 Soil Mechanics	3
CE 08 62 Sanitary Engineering II	4
CE 08 73 Transportation II	4
	<hr/> 18
<i>Term IX Summer)</i>	
Approved Experience	

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	Credit Hours
<i>Term X (Fall)</i>	
CE 10 43 Soil Mechanics and Foundation	3
Elective	3
Elective	3
Elective	3
Elective	3
	<hr/> 15

Electives of Term X :

- A 19 05 Building Construction and Architectural Materials I
- CE 10 91 Specification and Quantity Surveying
- CE 10 15 Structures III
- CE 10 16 Engineering Analysis
- CE 10 54 Hydraulic Structures
- CE 10 74 Pavement Design
- Mathematics

Term XI (Spring)

CE 10 34 Steel	3
Elective	3
Elective	3
Elective	3
Elective	3
	<hr/> 15

Electives of Term XI :

- A 16 10 City Planning
- AS 42 Law and Contracts
- CE 11 36 Bridges
- CE 11 63 Waterworks and Sewageworks Design
- CE 11 75 Traffic Engineering
- CE 11 92 Engineering Management
- CE 60 31 Prestressed Concrete
- Mathematics

Classes of 1972 and 1973

Term VII (Fall)

A 19 06 Building Construction and Architectural Materials I	4
E 21 07 Structures II	3
E 22 07 Concrete I	3
E 24 07 Fluid Mechanics II	3
E 26 07 Transportation I	3
Eur. Lit. 209 European Literature	3
	<hr/> 19

	Credit Hours
<i>Term VIII (Spring)</i>	
E 11 08 Evolution of Cities	3
E 12 08 Shop - Metal Technology	1
E 22 08 Concrete II	4
E 24 08 Hydrology	4
E 26 08 Transportation II	3
E 27 08 Soil Mechanics and Foundations I	4
	<hr/> 19

Term IX (Summer)
Approved Experience

<i>Term X (Fall)</i>	
A 16 10 City Planning	2
E 21 10 Structures III	4
E 24 10 Hydraulic Structures	4
E 27 10 Soil Mechanics and Foundations II	3
E 28 10 Water Supply and Sewerage	4
E 12 10 Law and Contracts	3
Math. 209 Digital Computer Programming I	1
	<hr/> 21

<i>Term XI (Spring)</i>	
E 22 11 Steel	4
E 26 11 Transportation III	4
E 43 11 Engineering Economy	3
E 44 11 Specifications and Quantity Surveying	3
Elective	3
	<hr/> 17

Electives of Term XI :

- CE 11 36 Bridges
- CE 11 63 Waterworks and Sewageworks Design
- CE 11 75 Traffic Engineering
- CE 60 32 Concrete III
- Math. 211 Digital Computer Programming II

UNDERGRADUATE COURSES

CE01 11 Statics. 3 cr. Review of vector algebra. Forces ; moments ; couples. Free body diagrams. Beams ; frames ; arches ; plane trusses ; space trusses. Center of gravity. Friction. Virtual work.

CE02 111 Statics (Architecture students). 2 cr.

CE03 71 Geodetic Studies. 4 cr. Plane surveying ; topographic mapping ; location surveys. Geodetics. Field astronomy. Triangulation. Elements of photogrammetric and aerial surveying.

CE04 12 *Mechanics of Materials*. 3 cr. Tension ; compression ; shear and bending moment diagrams ; torsion. Stress-strain relationship ; stresses in beams ; columns ; combined stresses ; strain energy and impact ; Mohr circle.

CE04 121 *Mechanics of Materials* (Architecture students). 3 cr.

CE04 31 *Science of Materials*. 3 cr. Atomic structure, order and disorder ; elastic, plastic, viscoelastic behavior ; multiphase materials ; strengthening processes ; mechanical failures ; service stability and materials systems.

CE05 13 *Structures I*. 3 cr. Influence lines, trusses and beams. Cables. Deflection of beams and frames by double integration methods, singularity function approach, area moment theorems, conjugate beam, and conjugate structure. Introduction to indeterminate structures.

CE05 131 *Structures I* (Architecture students). 2 cr. Reactions, shears and moments in beams. Trusses. Three-hinged arches. Three-dimensional frameworks. Cables. Approximate analysis of statically indeterminate structures.

CE05 41 *Engineering Geology*. 3 cr. Field identification of common rock types. Interpretation of topographic and geological maps and their use in site locations. Application of geology to engineering practice.

CE05 51 *Fluid Mechanics*. 4 cr. Fluid properties ; fluid statics ; kinematics of fluid flow ; energy and momentum considerations in fluid flow ; similitude and dimensional analysis ; fluid resistance ; elementary hydro-dynamics.

CE06 411 *Engineering Geology* (Architecture students). 1 cr. Rock types and formations. Use of geological information in civil engineering.

CE06 52 *Applied Fluid Mechanics*. 3 cr. Fluid flow in pipes ; flow in open channels ; fluid measurements ; hydraulic machinery ; unsteady flow.

CE06 72 *Transportation I*. 3 cr. Principles of geometric design of highways. Highway location. Volume counts ; capacity analysis ; vertical curves ; super-elevation ; design of intersections, rotaries, and interchanges.

CE07 14 *Structures II*. 3 cr. Energy theorems and applications to trusses, beams and frames. Slope-deflection equations. Moment distribution. Influence lines for indeterminate structures.

CE07 141 *Structures II* (Architecture students). 2 cr. Deflection of structures. Analysis of statically indeterminate structures.

CE07 32 *Concrete I*. 4 cr. Mechanics and behavior of reinforced concrete. Working stress and ultimate strength theories in flexure, shear, and bond ; applications to beams and one-way slabs.

CE07 53 *Hydrology*. 3 cr. The hydrologic cycle including precipitation, stream-flow, evapo-transpiration and groundwater. Runoff cycle. Hydrograph analysis. Unit hydrographs. Streamflow routing.

E07 61 *Sanitary Engineering I*. 4 cr. Quantities of public and individual water supplies, with methods of collection, transportation and distribution. Sources, quantities and collection of sanitary and storm sewage. Solid waste collection and disposal.

CE08 321 *Concrete I* (Architecture students). 3 cr. Structures and materials. Mechanics and behavior of concrete, steel and reinforced concrete. Analysis of reinforced concrete structures. Design of sections under normal stresses.

CE08 33 *Concrete II*. 4 cr. Ribbed slabs ; two-way slabs ; flat slabs. Columns by working stress and ultimate strength theories. Foundations. Stairways. Cantilever retaining walls.

CE08 42 *Soil Mechanics*. 3 cr. Soil classification ; soil hydraulics ; consolidation. Stress-deformation and strength characteristics ; failure theories. Laboratory testing.

CE08 62 *Sanitary Engineering II*. 4 cr. Quality and methods of treatment of water supply and disposal of sewage.

CE08 63 *Environmental Control I*. 2 cr. Fundamentals of sanitary engineering, including public and individual water supply and purification methods ; plumbing and sewer systems ; sewage treatment ; sewage and refuse disposal.

CE08 73 *Transportation II*. 4 cr. Fundamentals of transportation engineering. Railroads ; pipelines ; airports ; harbors. Grading operation and compaction. Construction practices.

CE10 15 *Structures III*. 3 cr. Introduction to matrix algebra. Displacement methods ; force method ; application and comparison of both methods. Solutions using the computer.

CE10 16 *Engineering Analysis*. 3 cr.

CE10 331 *Concrete II* (Architecture students). 2 cr. Design of sections under tangential stress. Slabs. Columns under combined axial compression and bending.

CE10 341 *Steel* (Architecture students). 1 cr. Design of members under simple and combined stresses. Connections.

CE10 43 *Soil Mechanics and Foundations*. 3 cr. Excavating and stabilization. Stresses in soil and settlement analysis. Bearing capacity. Foundations on sand ; foundations on clay ; pile foundation. Retaining walls.

CE10 54 *Hydraulic Structures*. 3 cr. Design of channels : rigid bed channels, stable channels. Design of conveyance structures. Design of concrete, earth and rockfill dams. Design of spill-ways. Hydraulic models.

CE10 74 *Pavement Design*. 3 cr. Highway and airport pavement design—flexible and rigid. Pavement types and wheel loads ; stresses in flexible and rigid pavements ; pavement behavior under moving loads ; pavement pumping ; soil stabilization.

CE10 91 *Specifications and Quantity Surveying*. 3 cr. Preparation of specifications and bills of quantities for new buildings and architectural engineering and industrial works, including taking off, abstracting, costing and billing.

CE11 34 *Steel*. 3 cr. Design of tensile and compressive members, rolled and built-up. Design of beams and members under combined bending and axial load. Design of connections, welded and riveted.

CE11 36 *Bridges*. 3 cr. Theory and design of highway bridges, abutments and piers. Application of theory to problems during the design period.

CE11 431 *Soil Mechanics and Foundations* (Architecture students). 2 cr. Identification, sampling, testing and properties of soils. Stability of slopes. Foundations on various uniform and non-uniform soils.

CE11 63 *Waterworks and Sewageworks Design*. 3 cr. Design of waterworks and sewageworks schemes, including recent developments in theories of conventional treatment processes.

CE11 75 *Traffic Engineering*. 3 cr. Volume, density, speed, travel time, delay, intersection performance, capacity, accidents, traffic demand ; termination, parking, traffic control devices.

CE11 92 *Engineering Management*. 3 cr. Management of an engineering enterprise. Basic concepts. Purpose of management. Centralization and decentralization.

CE13 151 *Structures III* (Architecture students). 2 cr. Structural systems. Thick and thin shells. Some types of linear structural systems. Tall structures.

E11 08 *Evolution of Cities*. 3 cr. Historical development of cities through the ages. The chief concepts in social relations in so far as they affect urban and rural communities.

E12 08 *Shop—Metal Technology*. 1 cr. Practice in joining of metals by soldering, brazing, and gas welding. Shop safety.

E19 11 *Introduction to Soil Mechanics and Foundations*. 3 cr. Identification, testing and properties of soils. Sampling procedures. Stability of slopes. Foundations on sand, clay, silt and loess, non-uniform soils.

E20 10 *Steel Structures*. 2 cr. Design of tensile and compressive members, beams and members under combined bending and axial load. Design of connections.

E21 07 *Structures II*. See CE07 14.

E21 10 *Structures III*. See CE10 15.

E22 07 *Concrete I*. See CE07 32.

E22 03 *Concrete II*. See CE08 33.

E22 11 *Steel*. See CE11 34.

E24 07 *Fluid Mechanics II*. See CE06 52.

E24 08 *Hydrology*. See CE07 53.

E24 10 *Hydraulic Structure*. See CE10 54.

E26 07 *Transportation I*. See CE06 72.

E26 08 *Transportation II*. See CE08 73.

E26 11 *Transportation III*. See CE10 74.

E27 08 *Soil Mechanics and Foundations I*. See CE08 42.

E27 10 *Soil Mechanics and Foundations II*. See CE10 43.

E28 07 *Fundamentals of Sanitary Engineering*. See CE07 61.

E28 10 *Water Supply and Sewerage*. See CE08 62.

E42 10 *Law and Contracts*. See AS 42.

E43 11 *Engineering Economy*. 3 cr. Basic economic principles essential to the decision making process ; business managerial tools for optimizing engineering decisions ; elements of feasibility studies.

E43 14 *Engineering Economy*. 1 cr. Same description as E43 11.

E44 11 *Specifications and Quantity Surveying*. 3 cr. Preparation of specifications and bills of quantities for new buildings and architectural engineering and industrial works, including taking off, abstracting, costing and billing.

E44 14 *Specifications and Quantity Surveying*. 3 cr. Same description as E44 11.

E47 11 *Sanitary Engineering*. 2 cr. Public and individual water supply and purification methods ; plumbing and sewer systems ; sewage treatment ; sewage and refuse disposal. Insect and rodent control.

E48 11 *Specifications and Quantity Surveying*. 1 cr. Preparation of specifications, bills of quantities and lists of materials for mechanical engineering services in buildings.

GRADUATE COURSES

CE60 11 *Advanced Structural Analysis*. 3 cr. Deformation due to shear. Applications of matrix methods for analysis of arches, and long span structures. Introduction to analysis of structures subjected to dynamic loading systems, and to elastic stability of structures.

CE60 12 *Applied Elasticity*. 3 cr. Analysis of stress and strain; stress-strain relations ; energy principles ; plane strain and plane stress problems. Torsion. Bending of solid-section beams. Beams on elastic foundations.

CE60 13 *Plates and Shells I*. 3 cr. Pure bending of plates of various shapes and different edge conditions. Plates on elastic foundations. Large deflection of plates.

CE60 14 *Plates and Shells II*. 3 cr. Elements of differential geometry. Membrane theory for shells of revolution and for shells of general shape. Bending theory of closed and open circular cylindrical shells.

CE60 15 *Structural Dynamics I*. 3 cr. General introduction to sinusoidal vibrations. Numerical analysis of simple systems. Rigorous analysis of one-degree systems. Lumped Parameter systems. Distributed mass systems.

CE60 16 *Structural Dynamics II*. 3 cr. Dynamic properties of materials. Earthquake analysis and design ; blast resistant design ; dynamic effects of wind load. Beams subjected to moving loads. Dynamic of bases and foundations.

CE60 17 *Stability of Structures*. 3 cr. Flexural-torsional buckling of columns. Analysis of frames in the plastic range. Stability calculations by numerical methods. Critical examination of interaction equations. Buckling of arches, plates and shells.

CE60 18 *Experimental Mechanics*. 3 cr. Experimental methods for analyses of stress, strain and displacements. Theory and application of strain gages. Photo-elastic methods for determining stresses in models.

CE60 19 *Finite Element Method*. 3 cr. Finite element method as a generalization of structural theory. Survey of applications in structural mechanics. Plane stress problems, triangular element and rectangular element.

CE60 31 *Prestressed Concrete*. 3 cr. Introduction. Materials and prestressing systems. Losses and friction in prestressed members. Analysis and design of sections for flexure. Shear, bond, partial prestress. Design of continuous beams and slabs. Compression members. Special topics.

CE60 32 *Concrete III*. 3 cr. Advanced reinforced concrete. Special topics.

CE60 41 *Advanced Soil Mechanics I*. 3 cr. Slope stability and analysis. Stabilization of slopes and remedial measures. Soil strength. Pore pressure parameters. Lateral pressures.

CE60 42 *Advanced Soil Mechanics II*. 3 cr. Analysis of bulkheads in cohesive and non-cohesive soils. Seepage through soils. Flow nets.

CE60 43 *Advanced Foundation Engineering*. 3 cr. Beams on elastic foundations. Pile foundations subject to moments and horizontal forces. Radial consolidation. Loads on buried conduits and tunnel linings. Stresses in storage bins. Damage caused by vibrations.

CE60 51 *Advanced Hydrology*. 3. cr. Rainfall runoff relations. Hydrologic characteristics of large storms. Flood routing. Frequency duration studies. Occurrence and movement of ground water. Hydraulics of wells.

CE60 52 *Hydraulics of Open Channels*. 3 cr. Steady flow in open channels ; uniform flow ; gradually and rapidly varied flow. Flow through channels of non-linear alignment. Unsteady flow in open channels.

CE60 53 *Advanced Hydraulic Engineering.* 3 cr. Ideal flow ; flow nets ; nomography. Turbulent flow in closed and open conduits. Principles of sedimentation and sediment transportation. Waterfront structures. Hydraulic machinery.

CE60 58 *Water Resources Development.* 3 cr. Factors involved in water resources planning, design, and development. Water reclamation. Management of water schemes.

CE60 61 *Waste Disposal.* 3 cr. Waste water and solid water disposal methods and their effect on environment. Methods for reclamation of liquid and solid wastes.

CE60 62 *Advanced Sanitary Engineering.* 3 cr. Theories of non-conventional treatment methods in water and sewage works, with special reference to the most recent developments.

CE60 63 *Industrial Wastes.* 3 cr. Study of the water quality and quantity supplied to industry. Methods of treatment and disposal of industrial wastes.

CEH60 64 *Air Pollution.* 3 cr. Nature and effects of air pollutants. Concepts used in air pollution measurement and control processes, engineering and legislative.

CEH60 65 *Marine Pollution.* 3 cr. Nature and effects of marine pollutants. Analytical measurements and concepts used in marine pollution control processes.

CE60 71 *Advanced Transportation Design.* 3 cr. Reconnaissance. Photogrammetry and airphoto interpretation. Soil survey. Design speed ; design volume ; capacity.

CE60 72 *Highway Planning and Economics.* 3 cr. Highway planning survey, classification, needs studies. Sufficiency ratings. Economic feasibility studies ; economics of locations ; advance planning and programming ; highway finance ; highway administration.

CE60 73 *Urban Transportation Planning.* 3 cr. Land-use planning, travel desires, basic urban transportation studies, including origin and destination surveys ; comprehensive parking studies ; transit studies ; transit planning.

CE60 75 *Traffic Engineering Operations and Controls* 3. cr. Traffic laws and ordinances, speed regulation, curb parking regulations, through controls, one-way streets, right-of-way regulation, design and application of signs, markings, lighting, and traffic engineering administration.

CE60 76 *Theory of Traffic Flow.* 3 cr. Study and evaluation of various qualitative and quantitative descriptions of the complex phenomenon of traffic flow.

CE60 77 *Engineering Uses of Aerial Photography.* 3 cr. Airphoto interpretation and application to engineering surveys, with emphasis on interpretation of land forms and their influence on location studies.

CE60 78 *Airport Planning and Design.* 3 cr. Aircraft characteristics ; air traffic control ; site selection ; airport configuration ; geometric design of landing area ; planning and development of terminal areas ; lighting ; design of heliports.

DEPARTMENT OF ELECTRICAL ENGINEERING

Chairman : Kano, K.

Professors : Hanania, J. ; Khoury, Sh. ; Madany, H. ; McGlothlin, G. ; Nasser, E. ; Regier, F. ; Sabah, N. ; Seeger, F. ; Shuraym, G.

Instructor : Kul-Sahagian, R.

CURRICULUM FOR THE DEGREE OF BACHELOR OF ENGINEERING ; MAJOR,
ELECTRICAL ENGINEERING

	Credit Hours
<i>Term I (Fall)</i>	
AS 11 Man's Cultural Evolution I	3
CE 01 11 Statics	3
Math. 201 Calculus and Analytic Geometry II	4
ME 01 11 Engineering Drawing	3
Phys. 211 Introductory Physics III	3
	—
	16
<i>Term II (Spring)</i>	
AS 12 Man's Cultural Evolution II	3
Chem. 201 Chemical Principles I	5
ET 1 Shop I	1
Math. 202 Calculus and Analytic Geometry III	4
Math. 209 Digital Computer Programming I	1
ME 02 21 Dynamics	3
	—
	17
<i>Term III (Summer)</i>	
CE 03 39 Science of Materials	2
EE 03 11 Electric Circuits I	3
ET 2 Shop II	2
Phys. 212 Introductory Physics IV	3
	—
	10
<i>Term IV (Fall)</i>	
AS 13 History of Architectural and Engineering Works I	3
E 13 04 Mathematics III	4
EE 04 12 Electric Circuits II	3
EE 04 21 Electronics I	4
ME 04 31 Thermodynamics I	3
	—
	17
<i>Term V (Spring)</i>	
AS 14 History of Architectural and Engineering Works II	3
E 13 05 Mathematics IV	4
EE 05 22 Electronics II	4
EE 05 31 Magnetic Circuits and Machines	4
ME 05 41 Fluid Mechanics I	3
	—
	18
<i>Term VI (Summer)</i>	
AS 21 Music Appreciation	2
EE 06 13 Electrical Measurements	2
EE 06 14 Engineering Analysis	2
ME 06 31 Heat Power	3
	—
	9

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	Credit Hours
<i>Term VII (Fall)</i>	
AS 31 European Literature	3
EE 07 15 Transmission Lines	3
EE 07 23 Electronics III	4
EE 07 32 Energy Conversion I	4
EE 07 41 Field Theory I	3
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/> 17

<i>Term VIII (Spring)</i>	
AS 41 Elective in the Humanities	3
EE 08 16 Introduction to Linear System Theory	3
EE 08 24 Electronics IV	3
EE 08 33 Energy Conversion II	4
EE 09 42 Field Theory II	3
ET 4 Shop III	1
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/> 17

Term IX (Summer)
Industrial Training

<i>Term X (Fall)</i>	
EE 10 25 Pulse Circuits and Techniques	4
EE 10 26 Microwaves	3
EE 10 34 Power Transmission	3
EE 10 61 Project	4
Elective	3
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/> 17

<i>Term XI (Spring)</i>	
AS 43 Engineering Management	3
EE 11 51 Feedback Controls	4
EE 11 62 Project	5
Elective	3
Elective	3
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/> 18

Classes of 1972 and 1973

<i>Term VII (Fall)</i>	
E 29 07 Fluid Mechanics II	3
E 39 07 Electrical Machines I	4
E 40 07 Electric Circuits II	3
E 41 07 Electronics II	4
E 63 07 Shop — Metal Technology	1
Eur. Lit. 209 European Literature	3
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/> 18

	Credit Hours
<i>Term VIII (Spring)</i>	
E 11 08 Evolution of Cities	3
E 39 08 Electrical Machines II	4
E 40 08 Electric Circuits III	3
E 41 08 Electronics III	3
E 55 08 Introduction to Linear System Theory	2
E 57 08 Pulse Techniques I	3
E 63 08 Shop — Electrical Maintenance	1
	—
	19
<i>Term IX (Summer)</i>	
Approved Experience	
<i>Term X (Fall) (16 Weeks)</i>	
E 39 10 Electric Power Transmission I	3
E 40 10 Electromagnetics I	3
E 41 10 Electronics IV	3
E 42 10 Law and Contracts	3
E 54 10 Industrial Controls	3
E 57 10 Pulse Techniques II	4
	—
	19
<i>Term XI (Spring)</i>	
E 39 11 Electric Power Transmission II	3
E 40 11 Electromagnetics II	3
E 41 11 Electronics V	3
E 43 11 Engineering Economy	3
E 57 11 Project	5
Math. 209 Digital Computer Programming I	1
	—
	18

UNDERGRADUATE COURSES

EE03 11 *Electric Circuits I.* 3 cr. Basic analysis of linear circuits and networks. Use of loop and nodal method in the steady-state response of circuits. Time domain analysis. Transient response of simple circuits.

EE03 71 *Electrical Engineering* (CE Students). 3 cr. Single-phase and three-phase circuits. Fundamentals of generators, motors and transformers. Principles of power distribution. Illumination.

EE04 12 *Electric Circuits II.* 3 cr. Sinusoidal steady-state techniques. Series and parallel resonance. Nonsinusoidal waves. Fourier and Laplace transforms. Two-terminal pair network relationships.

EE04 19 *Electric Circuits* (ME students). 2 cr. Basic linear circuit analysis. Solution of DC, AC and transient problems. Thevenin, Norton and maximum power transfer theorems. Resonance. Circuit analogues of mechanical systems.

EE04 21 *Electronics I.* 4 cr. Electron ballistics. Elements of wave mechanics. Energy band structure. Conduction in metals and semiconductors. Electron emission from metals. Vacuum diodes; PN junction and tunnel diodes. Rectifier circuits.

EE05 22 *Electronics II.* 4 cr. Characteristics and applications of multielectrode tubes. Junction and FET transistors; characteristics and equivalent circuits. Multistage voltage amplifiers; power amplifiers.

EE05 31 *Magnetic Circuits and Machines.* 4 cr. Physical aspects of electric machinery. Interaction of magnetic fields. DC generators and motors. Polyphase systems. Three-phase induction motors. Transformers.

EE06 13 *Electrical Measurements.* 2 cr. Units of basic electrical quantities. Classification and features of electrical instruments. Errors in electrical measurements. Electronic instruments, potentiometers and bridges.

EE06 14 *Engineering Analysis.* 2 cr. Integration of fundamental physical laws with mathematical methods of analysis in their applications to simple dynamic systems in electrical, mechanical, thermal and fluid systems.

EE07 15 *Transmission Lines.* 3 cr. Differential equations of transmission lines with distributed constants, traveling wave and standing wave solution. Impedance matching. High frequency effects.

EE07 23 *Electronics III.* 4 cr. Properties of negative feedback and negative feedback amplifiers. Tuned amplifiers; Class C amplifiers.

EE07 32 *Energy Conversion I.* 4 cr. Principles of electromechanical energy conversion. Generalized torque and voltage production in rotating machines. Dynamic equations of DC machines. Study of ideal synchronous machines and induction motors.

EE07 41 *Field Theory I.* 3 cr. Coulomb's law; Gauss's law. Electrostatic potential. Mapping. Laplace's equation and solution. Ampère's and Biot-Savart's laws. Magnetic potential. Faraday's law; Maxwell's equations.

EE08 16 *Introduction to Linear System Theory.* 3 cr. Basic linear algebra fundamental to analysis of linear systems including vector spaces, basis and dimension, matrices and linear operators.

EE08 24 *Electronics IV.* 3 cr. Phase shift, negative resistance and tuned circuits oscillators. Noise in amplifiers. Amplitude modulation systems and frequency modulation systems.

EE08 33 *Energy Conversion II.* 4 cr. Theory of transformers. Steady-state analysis of DC machines, synchronous machines and polyphase induction motors as determined from performance characteristics.

EE08 42 *Field Theory II.* 3 cr. Electromagnetic diffusion equation. Skin effect. Wave equation and solution. Reflection and refraction. Waveguides and resonators. Radiation and antennas. Anisotropic media.

EE10 25 *Pulse Circuits and Techniques.* 4 cr. Wave shaping networks. Clipping, clamping, comparator, and switching circuits. Pulse transformers and transmission lines. Multivibrators and time-base generators. Binary logic and circuits.

EE10 26 *Microwaves.* 3 cr. Transmission lines and waveguides. Antennas. Microwave resonators. Microwave devices and microwave amplifiers and oscillators.

EE10 29 *Electronics (ME students).* 3 cr. Semiconductor and vacuum diodes. Junction transistors. Multielectrode tubes. Rectifiers and amplifiers. Feedback and oscillators.

EE10 34 *Power Transmission.* 3 cr. Elements of power transmission systems—AC and DC. Electrical line constants and line calculations. Underground cables. Complex networks and interconnected systems.

EE10 61 *Project.* 4 cr. Design, construction and testing of an electrical system.

EE11 51 *Feedback Controls*. 4 cr. Mathematical models of systems. Characteristics, performance, and stability of linear control systems as analyzed by root-locus and frequency response methods.

EE11 62 *Project*. 5 cr. Design, construction and testing of an electrical system.

E38 11 *Electrical Technology (Architecture students)*. 3 cr. Electromotive force and Ohm's law. Power and energy in DC circuits. Kirchhoff's laws and their applications. Principles of alternating currents and AC elements and circuits.

E38 13 *Illumination and Electrical Distribution (Architecture students)*. 3 cr. Lighting fundamentals: light characteristics and measurements, lighting sources and their characteristics. Principles and applications of lighting design. Electrical distribution in buildings. Elevators. Signal systems.

E39 07 *Electrical Machines I*. 4 cr. Principles of electromechanical energy conversion. Generalized torque and voltage production in rotating machines. Dynamic equations of DC machines. Study of ideal synchronous machines and induction motors.

E39 08 *Electrical Machines II*. 4 cr. Theory of transformers. Steady-state analysis of DC machines, synchronous machines and polyphase induction motors as determined from performance characteristics.

E39 10 *Electric Power Transmission I*. 3 cr. Transmission with AC and DC; line parameters; inductance and resistance of lines; skin and corona effects; voltage-current relations; per unit calculations; generalized line constants; graphical solutions.

E39 11 *Electric Power Transmission II*. 3 cr. Representation of energy systems; basic network equations; matrix transformation; load-flow studies; symmetrical and unsymmetrical faults, symmetrical components; system stability; power and voltage control; economical energy dispatch.

E40 07 *Electric Circuits II*. 3 cr. Network equations. Coupled circuits. Network theorems. Graphical methods. Two-port networks. Fourier series; Fourier integral; Laplace transform and applications.

E40 08 *Electric Circuits III*. 3 cr. Constant-k and m-derived filters. Approximate and exact transmission line calculations. Lossless lines. Standing and traveling waves. Stub matching and the use of the Smith Chart.

E40 10 *Electromagnetics I*. 3 cr. Coulomb's law; Gauss's law. Electrostatic potential. Mapping. Laplace's equation and solution. Ampère's and Biot-Savart's laws. Magnetic potential. Faraday's law; Maxwell's equations.

E40 11 *Electromagnetics II*. 3 cr. Electromagnetic diffusion equation. Skin effect. Wave equation and solution. Reflection and refraction. Waveguides and resonators. Radiation and antennas. Anisotropic media.

E41 07 *Electronics II*. 4 cr. Transistor characteristics. Biasing and stability. Small-signal models of transistor circuits. Field-effect transistors. Untuned amplifiers.

E41 08 *Electronics III*. 3 cr. Tuned voltage amplifiers. Feedback in amplifiers. Criteria for oscillations and the Nyquist diagram. Negative resistance and feedback oscillators. Principles and techniques of amplitude and frequency modulation.

E41 10 *Electronics IV*. 3 cr. Energy band theory of solids. Properties of semiconductors. Junction diodes, bipolar and unipolar transistors. Miscellaneous semiconductor devices.

E41 11 *Electronics V*. 3 cr. Transmission lines and waveguides. Antennas. Microwave resonators. Microwave devices and microwave amplifiers and oscillators.

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E54 10 *Industrial Controls*. 3 cr. Mathematical models of systems. Characteristics, performance, and stability of linear control systems as analyzed by root-locus and frequency response methods.

E55 08 *Introduction to Linear System Theory*. 3 cr. Basic linear, algebra fundamentals applied to analysis of linear systems including vector spaces, basis and dimension, matrices and linear operators.

E57 08 *Pulse Techniques I*. 3 cr. Linear wave shaping circuits. Switching characteristics of devices. Clipping, comparator, clamping, and switching circuits.

E57 10 *Pulse Techniques II*. 4 cr. Elements of Boolean algebra. Logic gates and their implementation. Design of logic circuits. Astable, monostable, and bistable multivibrations. Timebase generators.

E57 11 *Project*. 5 cr. Design, construction and testing of an electrical system.

E63 08 *Shop—Electrical Maintenance*. 1 cr. Methods of installation and maintenance of wiring system in building together with protective switchgear. Physical construction of electrical machines and transformers.

GRADUATE COURSES

EE70 14 *Logic and Digital Systems*. 3 cr. Boolean algebra. Number systems. Fundamentals of logic design. Basic computer architecture: memory; arithmetic units; input / output units. Programming.

EE70 15 *Pulse and Digital Circuits*. 3 cr. Semiconductor devices as switches. The concept of charge control. Regenerative and nonregenerative switching circuits. Binary logic. Passive and active logic circuits.

EE70 16 *Process Control*. 3 cr. Review of computer principles and control theory. Computer control; supervisory systems; bit pusher control. Computer configuration. Computer applications.

EE70 21 *Network Analysis*. 3 cr. Network elements. Topological analysis and graph theory. State-variable approach to network analysis. Stability of linear and nonlinear circuits. Scattering matrix applications.

EE70 22 *Network Synthesis*. 3 cr. Realizability theory. Unconditional stability. Canonic two-element synthesis. Darlington synthesis. Use of negative resistance in synthesis. Driving point and transfer function synthesis.

EE70 23 *Electromagnetic Field Theory*. 3 cr. Maxwell's stresses; Green's function; Huygen's principle; Fresnel diffraction. Propagation through anisotropic media. Variational and perturbation techniques.

EE70 24 *System Theory*. 3 cr. Fundamental system concepts of input, output and state linearity and time invariance. State space theory and stability of time-varying and time-invariant linear differential systems.

EE70 25 *State Variable Methods*. 3 cr. State representation and state equations of continuous and discrete time dynamical systems. Vector spaces and solution of vector differential equations.

EE70 31 *Basic Semiconductor Theory*. 3 cr. Principles of quantum mechanics and statistical mechanics. Crystal momentum and effective mass; concept of the hole. Band theory of solids. Semiconductors and transport phenomena.

EE70 32 *Semiconductor Devices*. 3 cr. Semiconductor diodes, varactors, tunnel and Zener diodes. Bipolar and FET transistors. Integrated circuits. Gunn effect and avalanche devices. Miscellaneous semiconductor devices.

EE70 41 *Power Systems*. 3 cr. Comparison of transmission with AC and DC; concepts of DC transmission; rectifier and inverter parameters and characteristics; compounding and regulation; faults and protections. System components.

EE70 42 *Dielectrics and Energy Systems*. 3 cr. Insulation coordination; transients and protection; gaseous dielectrics, ionization and deionization; motion of charged particles in gases; breakdown, corona, plasmas, glow and arc discharges; arresters and breakers.

EE70 51 *Optimal Control*. 3 cr. Statement of the optimal control problem. Necessary and sufficient conditions for optimality. The minimum principle. Structure and properties of time and fuel optimal systems.

DEPARTMENT OF MECHANICAL ENGINEERING

Chairman : Deeb, S.

Professors : Abi-Rached, G.; Azoury, P.; Chahine, M.; Clumpner, J.; Kuran, A.; Sakkal, F.; Sfeir, A.

Lecturer : Klat, S.

Instructor : Hawa, N.

Assistant Instructor : Khalaf, R.

CURRICULUM FOR THE DEGREE OF BACHELOR OF ENGINEERING ; MAJOR, MECHANICAL ENGINEERING

	Credit Hours
<i>Term I (Fall)</i>	
AS 11 Man's Cultural Evolution I	3
CE 01 11 Statistics	3
Math. 201 Calculus and Analytic Geometry II	4
ME 01 11 Engineering Drawing	3
Phys. 211 Introductory Physics	3
	—
	16
<i>Term II (Spring)</i>	
AS 12 Man's Cultural Evolution II	3
Chem. 201 Chemical Principles I	5
ET 1 Shop I	1
Math. 202 Calculus and Analytic Geometry III	4
Math. 209 Digital Computer Programming I	1
ME 02 21 Dynamics	3
	—
	17
<i>Term III (Summer)</i>	
CE 04 31 Science of Materials	3
ET 2 Shop II	2
ME 03 01 Introduction to Mechanical Engineering	2
Phys. 212 Introductory Physics IV	3
	—
	10

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	Credit Hours
<i>Term IV (Fall)</i>	
AS 13 History Architectural and Engineering Works I	3
CE 04 12 Mechanics of Materials	3
E 13 04 Mathematics III	4
EE 04 19 Electric Circuits	2
ET 5 Shop III	1
ME 04 31 Thermodynamics I	3
	<hr/> 16
<i>Term V (Spring)</i>	
AS 14 History of Architectural and Engineering Works II	3
E 13 05 Mathematics IV	4
EE 05 31 Magnetic Circuits and Machines	4
ME 05 32 Thermodynamics II	3
ME 05 41 Fluid Mechanics I	3
	<hr/> 17
<i>Term VI (Summer)</i>	
AS 21 Music Appreciation	2
EE 06 13 Electrical Measurements	2
ME 06 22 Engineering Analysis	2
ME 06 23 Mechanisms	3
	<hr/> 9
<i>Term VII (Fall)</i>	
AS 31 European Literature	3
ME 07 12 Machine Drawing	2
ME 07 24 Dynamics of Machines	3
ME 07 42 Fluid Mechanics II	4
ME 07 71 Metallurgy	4
	<hr/> 16
<i>Term VIII (Spring)</i>	
AS 41 Elective in the Humanities	3
ME 08 25 Engineering Vibrations	4
ME 08 34 Heat Power I	4
ME 08 51 Mechanical Design I	4
ME 08 61 Heat Transfer I	4
	<hr/> 19
<i>Term IX (Summer)</i>	
Approved Experience	

	Credit Hours
<i>Term X (Fall)</i>	
EE 10 29 Electronics	3
ME 10 35 Heat Power II	4
ME 10 52 Mechanical Design II	4
ME 10 62 Heat Transfer II	3
ME 10 81 Heating, Air Conditioning and Refrigeration I	4
	—
	18
<i>Term XI (Spring)</i>	
CE 11 69 Sanitary Engineering	2
ME 11 54 Feedback Controls	4
ME 11 82 Heating, Air Conditioning and Refrigeration II	3
ME 11 91 Industrial Plant Design	3
Elective	3
	—
	15
Electives	
AS 43 Engineering Management	
ME 11 92 Chemical Processes	
ME 11 26 Advanced Dynamics	
Math. 242 Topics in Algebra II	
Math. 251 Numerical Analysis	

Classes of 1972 and 1973

<i>Term VII (Fall)</i>	
E 30 07 Dynamics of Machinery	3
E 34 07 Heat Power II	3
E 39 07 Electrical Machines I	4
E 40 07 Electric Circuits II	3
E 62 07 Shop — Mechanical Maintenance	1
E 64 07 Fluid Mechanics II	3
Eur. Lit. 209 European Literature	3
	—
	20
<i>Term VII (Spring)</i>	
E 11 08 Evolution of Cities	3
E 12 08 Shop — Metal Technology	1
E 30 08 Theory of Vibrations	4
E 32 08 Metallurgy	4
E 35 08 Heat Transfer	4
E 39 08 Electrical Machines II	4
	—
	20

Term IX (Summer)
Approved Experience

	Credit Hours
<i>Term X (Fall)</i>	
E 30 10 Machine Design I	4
E 34 10 Heat Power III	4
E 36 10 Air Conditioning and Refrigeration I	4
E 37 10 Industrial Processes	3
E 42 10 Law and Contracts	3
	<hr/>
	18
<i>Term XI (Spring)</i>	
E 30 11 Machine Design II	4
E 36 11 Air Conditioning and Refrigeration II	4
E 37 11 Industrial Plant Design	3
E 43 11 Engineering Economy	3
E 48 11 Specifications and Quantity Surveying	1
E 54 11 Industrial Controls	3
Math. 209 Digital Computer Programming I	1
	<hr/>
	19

UNDERGRADUATE COURSES

ME01 11 *Engineering Drawing*. 3.cr. Orthographic drawing. Isometric, oblique, and perspective drawing. Auxiliaries. Sections. Intersections and developments. Size description.

ME02 21 *Dynamics*. 3 cr. Kinematics; fixed and moving axes. Kinetics of particles and rigid bodies; work and energy, impulse and momentum. Conservation laws.

ME03 01 *Introduction to Mechanical Engineering*. 2 cr. Steam generation; draft in boilers. Indicator diagrams. Flywheels; governors. Fans, blowers and pumps.

ME04 31 *Thermodynamics I*. 3 cr. Definitions and units, first and second laws of thermodynamics, entropy, and ideal gases. Applications.

ME05 32 *Thermodynamics II*. 3 cr. Analysis of thermodynamic cycles; general thermodynamic relations; real gases; mixtures; kinetic theory.

ME05 41 *Fluid Mechanics I*. 3. cr. Fundamentals. Stress tensor. Fluid statics. Equations of continuity and motion. Irrotational incompressible flow. The stream and potential functions.

ME06 22 *Engineering Analysis*. 2 cr. Vector analysis: the "del" operator. Complex analytic functions: Cauchy's integral theorem; zeroes and singularities; conformal mapping.

ME06 23 *Mechanisms*. 3 cr. Linkages; cams; gearing; gear trains. Computing mechanisms. Introduction to synthesis.

ME06 31 *Heat Power*. 3 cr. Fuels and combustion. Steam generators. Power plant cycles, equipment and selection; power plant economy.

ME07 12 *Machine Drawing*. 2 cr. Machine elements. Drawings of welded parts, gears, cams and piping. Drawings and the shop. Fundamentals of design. Working drawings.

ME07 24 *Dynamics of Machines*. 3 cr. Velocity and acceleration diagrams. Force analysis of machinery; balancing. Gyroscopic forces.

ME07 42 *Fluid Mechanics II*. 4 cr. Introduction to viscous flows and boundary-

layer theory. Inviscid compressible flows; isentropic one-dimensional flows, normal and oblique shock relations, Prandtl-Meyer expansion.

ME07 71 *Metallurgy*. 4 cr. Metals and alloys; structure, properties, and production. Heat treatment. Working of metals. Powder metallurgy.

ME08 25 *Engineering Vibrations*. 4 cr. Single-mass systems; energy methods, transient and steady state forced vibrations. Influence of friction. Undamped multi-degree-of-freedom systems.

ME08 34 *Heat Power I*. 4 cr. Internal combustion engines; engine performance. Centrifugal and axial compressors. Gas turbines. Propulsion systems.

ME08 51 *Mechanical Design I*. 4 cr. Design of various machine elements. Simple design projects. Creative design problems.

ME08 61 *Heat Transfer I*. 4 cr. Conduction: one- and two-dimensional heat flow. Convection: black bodies, Planck's and Kirchhoff's laws. Solar radiation.

ME10 35 *Heat Power II*. 4 cr. Steam equations and tables. Steam prime-movers. Generators, condensers, and accessories. Steam pipe design. Power plant economy.

ME10 52 *Mechanical Design II*. 4 cr. Group design project of a complete machine. Advanced creative design problems. Case studies.

ME10 62 *Heat Transfer II*. 3 cr. Theory and design of heat exchangers. Simultaneous convective and radiative heat transfer. Extended surfaces. Two-phase heat transfer.

ME10 81 *Heating, Air Conditioning and Refrigeration I*. 4 cr. Heat load calculations. Heating systems. Pipe sizing. Heating equipment. Design problems.

ME11 54 *Feedback Controls*. 4 cr. System representation. Steady and transient states. Root-locus, frequency-response and analog methods. Hydraulic, pneumatic and electrical systems.

ME11 82 *Heating, Air Conditioning and Refrigeration II*. 3 cr. Air conditioning calculations. Refrigeration; equipment. Cooling towers. Insulation. Design problems.

ME11 91 *Industrial Plant Design*. 3 cr. Preparation and development of a plant layout. Plant services. Economic analysis.

ME11 92 *Chemical Processes*. 3 cr. Thermodynamics of chemical reactions with applications to industrial processes.

ME11 26 *Advanced Dynamics*. 3 cr. Kinematics and kinetics of general space motion: Euler angles, general momentum theorems. The methods of virtual works. Lagrange's equations. Stability theory.

ET 1 *Shop I*. 1 cr. Bench Work. Selection and care of tools. Common woodwork joints. Identification of common timbers. Metal cutting, threading, riveting and fitting.

ET 2 *Shop II*. 2 cr. Machine shop: Welding and sheet metal.

ET 3 *Shop III* (Architecture students). 1 cr. Decorative and protective coatings and finishes of materials used in building.

ET 4 *Shop III* (Electrical Engineering students). 1 cr. Wiring. Conduit assembly. Circuits for incandescent and discharge lamps. Metering of current, voltage, power and energy.

ET 5 Shop III (Mechanical Engineering students). 1 cr. Motor vehicle technology: engine unit. Lubrication, cooling, fuel, and electric systems. Clutches, transmissions, and differentials. Transformers and armature winding.

E30 07 Dynamics of Machinery. 3 cr. (See ME07 24).

E34 07 Heat Power II. 3 cr. Internal combustion engines; cycles, analysis, knock rating, performance. Gas turbines; combustion chambers.

E64 07 Fluid Mechanics II. 3 cr. (See ME07 42).

E30 08 Theory of Vibrations. 4 cr. (See ME08 25).

E32 08 Metallurgy. 4 cr. (See ME07 71).

E35 08 Heat Transfer. 4 cr. Conduction, convection, and radiation. Heat exchangers. Cooling towers. Parallel- and counterflows.

E36 08 Heating, Ventilation, and Air Conditioning. 4 cr. Load calculations; psychrometrics. Air-conditioning equipment; water towers, evaporative condensers. Air distribution; duct systems.

E30 10 Machine Design I. 4 cr. (See ME08 51).

E34 10 Heat Power III. 4 cr. Steam; generators, engines, and turbines. Flow in nozzles. Power plant economy. Nuclear power plants.

E36 10 Air Conditioning and Refrigeration I. 4 cr. (See ME10 81).

E37 10 Industrial Processes. 3 cr. Materials and processes in manufacturing: foundry, hot and cold working, plastics, powder metallurgy, heat treatment. Design considerations.

E30 11 Machine Design II. 4 cr. (See ME01 52).

E36 11 Air Conditioning and Refrigeration II. 4 cr. (See ME 11 82).

E37 11 Industrial Plant Design. 3 cr. (See ME11 91).

E54 11 Industrial Controls. 3 cr. (See ME11 54).

E62 07 Shop—Mechanical Maintenance. 1 cr. Service and maintenance of automotive vehicles: tuning, adjustments, valve grinding, decarbonizing.

E12 08 Shop—Metal Technology. 1 cr. Practice in joining of metals by gas welding, soldering and brazing, Shop safety.

GRADUATE COURSES

ME80 11 Hydrodynamics and Viscous Flow. 3 cr. The complex potential. Conformal mapping. N.S. equations: analytical solutions and boundary-layer theory.

ME80 12 Gas Dynamics. 3 cr. Equations of flow of compressible fluids. Shock waves. One-dimensional steady and unsteady flows; supersonic flows.

ME80 21 Advanced Thermodynamics. 3 cr. Generalized thermodynamic relations, chemical equilibrium and chemical reactions, ideal and real gases and gas mixtures. Applications to special systems.

ME80 31 Industrial Engineering I. 3 cr. Costing; capital budgeting. Project evaluation. Replacement studies; depreciation and obsolescence. Forecasting.

ME80 32 Industrial Engineering II. 3 cr. Production planning and control. Time and motion studies. Plant layout. Mathematical models. Financial management.

ME80 41 *Advanced Engineering Vibrations*. 3 cr. Basic theory. Shock, sound and noise isolation. Design of isolators. Theory of equipment design.

ME80 51 *Optimum Design of Mechanical Elements*. 3 cr. Optimum choice of method. Considerations for factor of safety. Optimum design. Applications.

ME80 61 *Systems Analysis*. 3 cr. Linear systems. Feedback. Stability criteria. Discrete systems. Non-linear controls. Optimization, controllability and observability.

ME80 71 *Turbomachinery*. 3 cr. Application of fluid-dynamic principles to the design of axial, radial and mixed flow machines. Performance principles of pumps, fans, compressors, and turbines.

ME80 81 *Thermal Conduction and Radiation*. 3 cr. Steady and unsteady heat conduction ; thermal radiation ; conservation principles. Techniques for analytical, analog and numerical solutions.

ME80 82 *Convective Heat Transfer*. 3 cr. Solutions of the momentum, continuity and energy equations for both natural and forced convection. Applications to laminar and turbulent flows.

ME80 91 *Advanced Engineering Mathematics I*. 3 cr. Linear algebra. Vector spaces. Linear programming. Complex analysis : conformal mapping, potential theory.

ME80 92 *Advanced Engineering Mathematics II*. 3 cr. Higher dimensional calculus. Partial differential equations of elliptic, parabolic and hyperbolic types. Topics in numerical analysis.

ASSOCIATED STUDIES

Seven of the courses prefixed AS in the new curricula are there given the titles Cultural I, II ... VII because the content is still under discussion. Until new decisions are made, the sequence will as follows :

AS11 *Man's Cultural Evolution I*. 3 cr. A survey of history, with emphasis on technological progress, political ideals and practices, and some emphasis on literature and the arts.

AS12 *Man's Cultural Evolution II*. 3 cr. Continuation of AS 11, with some emphasis on literature and the arts.

AS13 *History of Architectural and Engineering Works I*. 3 cr. A survey of the architectural and engineering works of all periods and their relation to important movements of the Fine Arts.

AS14 *History of Architectural and Engineering Works II*. 3 cr. Continuation of AS 13.

AS15 *History of Art*. 3 cr. The world history of art taught chronologically from the Renaissance to the present day, with special emphasis on the interrelationship of history and visual thought.

AS21 *Music Appreciation*. 2 cr. A survey of the various forms of music composition.

AS31 *European Literature 209*. 3 cr

AS41 Elective in the humanities.

AS42 *Law and Contracts*. 3 cr. Law. Elements of contracts including : parties, subject matter, consideration, consent, offer, acceptance and discharge.

AS43 *Engineering management*. 3 cr.



A high-contrast, black and white photograph of a field of rice plants. The image is dominated by the repetitive, textured shapes of the rice leaves and stems, which are rendered in stark white against a deep black background. The perspective is from a slightly elevated angle, looking down into the field. The text is positioned in the upper left quadrant, set against a dark, solid rectangular area.

**Faculties of
AGRICULTURAL
SCIENCES**

FACULTY OF AGRICULTURAL SCIENCES

Faculty List 1971-1972

Stanley P. Swenson, Ph.D. ; *Professor of Agriculture, Dean.*

James W. Cowan, Ph.D. ; *Professor of Nutrition, Associate Dean.*

Farid Amin Fuleihan, B.B.A. ; *Registrar.*

PROFESSORS

*Asmar, Joseph — D.V.M., Ecole Vétérinaire de Lyon ; Ph.D., University of California ; *Veterinary Medicine.*

*Cowan, James W. — Ph.D., Pennsylvania State University ; *Nutrition.*

*Henderson, Harry D. — Ph.D., University of Minnesota ; *Agricultural Engineering.*

*Macksoud, Salim W. — D.E., University of California ; *Irrigation.*

Sherman, G. Donald — Ph.D., Michigan State University ; *Soils.*

*Swenson, Stanley P. — Ph.D., University of Minnesota ; *Agriculture.*

*Talhouk, Abdul Munim — Dr. rer. nat., University of Munich ; *Economic Entomology.*

Weltzien, Heinrich C. — Dr. rer. nat., University of Bonn ; *Plant Pathology.*

ASSOCIATE PROFESSORS

*Abu Shakra, Salah — Ph.D., Oregon State University ; *Seed Technology.*

Anderson, W. Richard — Ph.D., Pennsylvania State University ; *Dairy Science.*

Atallah, Nicola — D.E., University of California ; *Irrigation.*

*Barnard, Enos E. — Ph.D., University of Wisconsin ; *Horticulture.*

Bhattacharya, Asok N. — Ph.D., Virginia Polytechnic Institute ; *Animal Nutrition.*

*Bray, Donald W. — Ph.D., Oregon State University ; *Plant Breeding and Genetics.*

*Daghir, Nuhad — Ph.D., Iowa State University ; *Poultry Science.*

*al-Haj, Fawzi — Ph.D., University of Wisconsin ; *Extension Education.*

*Kawar, Nasri S. + — Ph.D., Pennsylvania State University ; *Entomology.*

*Khalidy, Ramzi — Ph.D., University of California ; *Subtropical Horticulture.*

Saad, Adib — Ph.D., University of Wisconsin ; *Plant Pathology.*

*Saghir, Abdur Rahman + — Ph.D., University of California ; *Weed Science.*

*Sayegh, Antoine H. + — Ph.D., Oregon State University ; *Soils.*

*Tannous, Raja I. — Sc. D., Massachusetts Institute of Technology ; *Food Technology.*

* On Tenure Appointment.

+ On Furlough or Leave.

SENIOR LECTURERS

- Chaudhary, S.A. — Ph.D., Washington State University ; *Taxonomy*.
 Mameesh, Mustafa M.† — Ph.D., University of Illinois ; *Nutrition*.
 Pascoe, Enid G. — Ph.D., McGill University ; *Nutrition*.

ASSISTANT PROFESSORS

- Akrabawi, Salim S. — Ph.D., University of California ; *Nutrition*.
 Batal, Kheireddin M. — Ph.D., Iowa State University ; *Horticulture*.
 Bolton, Clinton G. — M.A., Michigan State University ; *Agricultural Mechanization*.
 Green, Brooke A. — Ph.D., Cornell University ; *Agricultural Economics*.
 Hallab, Abdul Hamid — Ph.D., Louisiana State University ; *Food Technology*.
 Nasr, Hikmat G. — Ph.D., University of Wisconsin ; *Plant Breeding and Genetics*.
 Nightingale, Ray W. — Ph.D., Cornell University ; *Agricultural Economics*.
 Paeth, Robert C. — Ph.D., Oregon State University ; *Soil Conservation*.
 Schwulst, Frank J. — Ph.D., University of Nebraska ; *Animal Breeding*.
 Stickley, S. Thomas — Ph.D., Ohio State University ; *Agricultural Economics*.
 Yacoub, Salah — Ph.D., Cornell University ; *Rural Sociology*.

INSTRUCTOR

- Guiser, David W. — B.A., Whitman College ; *Agriculture*.

RESEARCH ASSISTANTS

- Alahaydoyan, E.K. — B.S., American University of Beirut ; *Crop Production and Protection*.
 Fares, Ramona — B.S., University of Toledo ; *Animal Production and Protection*.
 Hasbani, Marlene — B.S., American University of Beirut ; *Soils and Irrigation*.
 Khayrallah, Walid — B.S., American University of Beirut ; *Crop Production and Protection*.
 Meneshian, Rita — M.S., American University of Beirut ; *Food Technology and Nutrition*.
 Mihranian, Armig — B.S., American University of Beirut ; *Soils and Irrigation*.
 Rashid, Khaled — B.S., American University of Beirut ; *Crop Production and Protection*.
 Salji, Joseph — M.S., American University of Beirut ; *Food Technology and Nutrition (Senior Research Assistant)*.
 Sansur, Arpine — B.S., in Pharmacy, American University of Beirut ; *Crop Production and Protection*.

Shadarevian, Sossy — B.S. in Pharmacy, American University of Beirut ; *Food Technology and Nutrition (Senior Research Assistant)*.

Silahian, Alex — B.S. in Pharmacy, American University of Beirut ; *Soils and Irrigation*.

Uwayjan, Michel — B.S., American University of Beirut ; *Animal Production and Protection (Senior Research Assistant)*.

General Information

The Faculty of Agricultural Sciences was established in 1952 in recognition of the need for a modern institution to train leaders for agricultural development in the Middle East.

The Faculty offers programs of study leading to professional degrees in Agricultural Sciences. Major fields for undergraduates are : agricultural economics and rural sociology, animal production and protection, crop production and protection (agronomy), crop production and protection (horticulture), food technology and nutrition, soils and irrigation, and general agriculture. In graduate study leading to the M.S. degree, the majors include : agricultural economics, agricultural mechanization, agronomy, animal pathology, animal production, entomology, extension education, food technology, horticulture, irrigation, nutrition¹, plant pathology, poultry production, rural sociology and soils. The Faculty offers the Doctor of Philosophy degree in Agronomy. Both the undergraduate and graduate programs provide training for students who wish to practice agriculture professionally as well as those who pursue further graduate study and a career in research. Emphasis is on food and agriculture in the Middle East.

The academic programs are administered by the Dean's Office in accordance with policies established by the Faculty and the Academic Affairs Committee. This Committee, which is advisory to the Dean, is composed of elected and appointed members of the Faculty with the Dean as Chairman. In addition to its function of establishing admission and curricular requirements, the Committee decides on all cases of admission, academic probation, promotion, and dismissal of students from the Faculty.

ADMISSION

For complete and detailed information regarding admission to the University, including certificates recognized, see pages 17 to 27 in the section on admission at the beginning of the catalogue.

For admission directly to first year Agriculture, Lebanese students must present the Lebanese Baccalaureate, Part II, (Mathematics or Experimental Science) or its official equivalent. Lebanese who hold the Baccalaureate (Philosophy) will be required to pass entrance examinations in Chemistry and Mathematics at the Sophomore entrance level and in sciences at the Freshman level.

Non-Lebanese students, to be eligible for admission to first year Agriculture, must have completed satisfactorily the Freshman science program in the Faculty of Arts and Sciences of this University or an equivalent program with a grade average of 70 or more in at least 12 credit hours and an average of 70 or more in Chemistry or Mathematics or Physics.

1. Under the Interfaculty Nutrition Program (see special chapter at the end of this catalogue entitled Graduate Study, page 266).

All applicants must be accepted by the Academic Affairs Committee, which will consider academic qualifications, character and physical fitness.

GRADUATION REQUIREMENTS

To be eligible for graduation with the degree of Bachelor of Science (in Agriculture) and the Ingénieur Agricole Diploma, a student must pursue one of the prescribed programs of study, must complete a minimum of 126 semester credit hours after being admitted to Agricultural Sciences, must achieve an overall minimum grade average of 70, and must be approved for graduation by the Faculty. For students who transfer to Agricultural Sciences from another Faculty, course credits pertinent to the agricultural curriculum may be transferred at the discretion of the Academic Affairs Committee.

Students who complete the second and third years with a general average of 85 or above and who are recommended by the Faculty of Agricultural Sciences, are awarded their degree *with distinction*.

ACADEMIC RULES AND REGULATIONS

Classification and Promotion

Normally, for promotion from one class to the next, a student must complete satisfactorily all the required courses.

For purposes of classification, Agriculture I students can be promoted to Agriculture II status only after having completed satisfactorily 40 credit hours from the date of entrance into the Faculty. For promotion to Agriculture III, the satisfactory completion of 85 credit hours is required.

Grades, Failures and Probation

In the Faculty of Agricultural Sciences the following grading system is used : 90-100 Excellent ; 80-89 Good ; 70-79 Fair ; 60-69 Weak ; below 60 Failing. No grade below 40 is reported.

To be placed on the Dean's Honor List, a student must : (a) be full time ; and (b) have a minimum grade average of 80. Only approximately 10% of each class may be placed on the Honor List except when more than 10% of the students in a class have an average of 85 or above.

A student who receives an incomplete grade during the first semester should complete the course before the end of the second semester, and a student who receives an incomplete grade during the second semester or summer session should complete the course before the beginning of the following academic year. Normally, a student who fails to complete the requirements for a course within the specified period will lose credit and receive a grade of 40. With the approval of the Faculty advisor, any course can be dropped before the end of the tenth week of a regular semester or before the end of the sixth week of summer session.

A student who fails required courses must repeat them.

At the end of each semester and summer session, the complete academic record of each student is reviewed by the Academic Affairs Committee. In general, a student will be placed on academic probation if :

- (a) he fails more than one-third of his total credits in any one semester or summer session ;

(b) his total cumulative average falls below 65 in the first year or 70 in the second year or third year.

Probation is usually removed after the student achieves a minimum cumulative average of 65 in first year or 70 in the second or third year and passes all required courses failed during the semester he was placed on probation. If a student remains on probation for more than a full year he may be dropped from the Faculty of Agricultural Sciences by action of the Academic Affairs Committee.

Any student who, in the judgment of the Academic Affairs Committee, does not show academic or professional promise or does not demonstrate behavior commensurate with the norms expected of a university student may be dropped at any time.

Attendance and Guidance

Attendance is required for all classes and laboratory sessions. Students absent due to illness must present a certificate from the Infirmary physician to the Dean's Office.

Students in Agriculture are expected to develop qualities of leadership and acquire technical competence in agriculture. Consequently, informal and constant contacts are encouraged between Faculty members and students.

Each student is assigned to a Faculty advisor who will assist in choosing his field of specialization, selecting elective courses, and be his counselor on academic work.

GRADUATE STUDY

General requirements for graduate study at the University are found in the special chapter at the end of this catalogue entitled Graduate Study. Specific information concerning requirements for the Faculty of Agricultural Sciences are found in the Graduate Study Manual, available on request from the Office of the Dean, Faculty of Agricultural Sciences, American University of Beirut.

AGRICULTURAL RESEARCH AND EDUCATION CENTER (AREC)

The Agricultural Research and Education Center, located 80 kilometers from Beirut in the Bekaa Valley, includes a research farm, staff residences, classrooms, a small library, laboratories, a dormitory, dining room, and recreational facilities. The facilities of the 100 hectare farm are used for teaching, research and demonstration on : fruits, vegetables, and field crops ; dairy, beef, mutton, and poultry production ; milk and food processing.

Under the provisions of the undergraduate curriculum, each student spends one semester and summer session successively in residence at the AREC. Courses taken during this period are mainly of a practical nature, and offer the student a unique opportunity to observe and participate in a wide range of farming operations.

Curriculum

Degree of Bachelor of Science in Agriculture and Ingénieur Agricole diploma

The undergraduate program leading to a B.S. degree in Agriculture and the Ingénieur Agricole Diploma covers a period of six semester and two summer sessions. To qualify for graduation, a student must complete successfully a minimum of 126 credits of course work including :

1. 90-91 credits of courses specified as Core Requirements including 9 credits of humanities or social sciences (see schedule below) ;
2. 29-30 credits in a selected major ;
3. 6 credits of free electives.

Included in the 9 credit hours of humanities or social sciences in the Core Requirements are Sociology 201 (3 credits) plus an introductory course in Economics (3 credits). The remaining three credits must be selected with the approval of the student's advisor from among the following Departments or Programs in the Faculty of Arts and Sciences : Cultural Studies, Education, Economics, Fine and Performing Arts, History and Archaeology, Mass Communications, Literature, Philosophy, Political Studies and Public Administration, Psychology, Religious Studies, and Sociology and Anthropology.

Majors

By the end of the second semester of second year Agriculture, each student will have selected a major from the following :

Departmental Majors : Agricultural Economics and Sociology, Animal Production and Protection, Crop Production and Protection (Agronomy), Crop Production and Protection (Horticulture), Food Technology and Nutrition, Soils and Irrigation.

Non-Departmental Major : General Agriculture.

In addition to the Core Requirements a Departmental major will consist of the following :

1. Farm Practices (summer session, second year), 2 credits ;
2. At least 15 credits of courses in the Department, in addition to Farm Practices ;
3. At least 12 credits in supporting and related courses selected from within or outside the Department in consultation with the student's advisor ;
4. Six credits of free electives selected by the student.

The major in General Agriculture will comprise, in addition to the Core Requirements :

1. Farm Practices (summer session, second year), 2 credits ;
2. A minimum of 23 credits including one course on each of the following areas : agricultural economics, agronomy, animal production, animal *or* plant breeding, agricultural machinery, food science, horticulture, plant protection, soils *or* irrigation ;

3. Four credits of additional courses selected in accordance with student's interest and objectives ;
4. Six credits of free electives selected by the student.

CORE REQUIREMENTS

First Year

	Lect. Hours per Week	Lab. Hours per Week	Semester Credit Hours
<i>First Semester (Beirut)</i>			
Agr. 201 Agricultural Orientation	1	-	1
Biol. 201 General Biology	3	3	4
Chem. 201 General Chemistry ¹	3	4	5
Econ. 203 Survey of Economics	3	-	3
SI 213 Physical Properties of Soils	2	3	3
Physical Education			-
			16

Second Semester (Beirut)

AES 212 Agricultural Economics	3	-	3
Biol. 202 General Biology	3	3	4
Chem. 208 Survey of Organic Chemistry	3	-	3
Chem. 209 Organic Chemistry Laboratory	1	3	2
SI 216 Soil Chemical Properties	2	3	3
Soc. 201 Principles of Sociology	3	-	3
Physical Education			-
			18

Summer (Beirut)

Biol. 274 Microbiology	3	4	4
CPP 211S Agricultural Mechanics	-	6	2
FTN 219S Introductory Agricultural Biochemistry	3	-	3
			9

1. For students entering first year Agriculture directly without completing Freshman Science, Students excused from Chemistry 201 will take 5 credits of electives in its place.

Second Year

	Lect. Hours per Week	Lab. Hours per Week	Semester Credit Hours
<i>First Semester (Beirut)</i>			
AES 225 Rural Sociology	3	-	3
Biol. 243 Genetics	3	-	3
CPP 221 Applied Entomology	2	3	3
CPP 223 Principles of Plant Pathology	2	3	3
FTN 221 Basic Nutrition	3	-	3
Elective : Humanities or Social Sciences	3	-	3
			18
<i>Second Semester (AREC)</i>			
Agr. 222 Farm Practices (general)	-	6	2
APP 222 General Livestock Production	3	3	4
APP 226 Poultry Production	2	3	3
CPP 222 Principles of Agronomy	3	4	4
CPP 224 General Horticulture	2	3	3
CPP 226 Agricultural Machinery	1	6	3
			19
<i>Summer (AREC) (Students elect major field of interest)</i>			
Agr. 222S Farm Practices (emphasis on major interest)	-	8	2
SI 228S Irrigation Principles and Practices	3	4	3
Electives : Subjects of major interest			6
			11
Third Year			
<i>First Semester (Beirut)</i>			
Agr. 295 Current Topics in Agricultural Sciences ¹	1	-	-
AES 235 Extension Education	3	-	3
Electives Subjects of major interest			11
Elective : Free elective			3
			17
<i>Second Semester (Beirut)</i>			
Agr. 296 Current Topics in Agricultural Sciences ¹	1	-	1
Elective : Introductory Statistics ²			2-3
Electives : Subjects of major interest			11-12
Elective : Free elective			3
			18
<i>Total Credits</i>			126

1. One-year course ; credit to be given after completion of course in second semester.

2. Students may select one of the following : Ed. 227, 3 cr ; EB. 360, 2 cr ; Math. 207, 3 cr.

Courses

Following is a brief statement and course listing for each Department and Program of the Faculty of Agricultural Sciences. Undergraduate courses are numbered 200-299, and graduate courses 300-399.

Numbers Following Course Titles

The first number following the course title indicates the number of lecture hours per week.

The second number indicates the laboratory hours required per week.

The third number indicates the semester credit hours for the course.

Course Descriptions

Detailed course descriptions are available for those requiring further information.

DEPARTMENT OF AGRICULTURAL ECONOMICS AND SOCIOLOGY

Chairman: al-Haj, F.

Professors: Greene, B.; Nightingale, R.; Stickley, S.; Yacoub, S.

The major functions of the Department of Agricultural Economics and Sociology (AES) (including Extension Education) are teaching and research oriented toward the agricultural, social and economic problems of the area. Also, the Department offers special programs, such as summer short courses, and engages in extension activities.

The Department offers a number of advanced undergraduate courses which provide a basis for a major at the B.S. level in *Agricultural Economics and Sociology* including extension. Introductory courses in these subjects are required of all undergraduate students in the School of Agriculture, as specified in the Core Requirements.

Graduate study programs leading to the M.S. degree are offered in: (a) *Agricultural Economics*, with options in agricultural development, farm credit and cooperatives, farm management and production, and marketing and prices; (b) *Rural Sociology*, with emphasis on community development and technological change; (c) *Extension Education*, with emphasis on program development and administration.

212 *Agricultural Economics*. 3.0; 3 cr. Application of principles of economics to the agricultural sector of the economies of the countries of the region. Prerequisite: Econ. 203 or consent of instructor.

225 *Rural Sociology*. 3.0; 3 cr. Examination of sociological problems of rural areas; influence of rural social institutions on rural development. Prerequisite: Soc. 201 or consent of instructor.

235 *Extension Education*. 3.0; 3 cr. Comparative study of extension philosophy, objectives and adaptation to developing countries; principles and methods of extension and adult teaching.

241 *Farm Management*. 3.0; 3 cr. Prerequisite: 212, or consent of instructor.

243 *Agricultural Marketing*. 3.0; 3 cr. Marketing services required for advancement

of agricultural production and food consumption. Prerequisite: consent of instructor.

282 *Adoption of Innovations*. 3.0; 3 cr. The process of accepting new farming ideas and the factors affecting their adoption.

284 *Rural Leadership*. 3.0; 3 cr. The setting, principles and techniques of lay leadership in rural development; leadership practice in selected programs.

286 *Agricultural Development*. 3.0; 3 cr. Interdisciplinary essentials for agricultural development.

299 *Undergraduate Tutorial*. 1-3 cr. Directed study. Prerequisite : third year standing.

300 *Tutorial*. 1-3 cr. Special problem. Prerequisite: consent of instructor.

311 *Planning Extension Programs*. 3.0; 3 cr. Approaches to planning extension programs; relative theories and research findings; case studies.

312 *Supervision of Extension Personnel*. 3.0; 3 cr. Principles and functions of supervision in recruitment, training, appraisal and planning of extension work.

313 *Extension Administration*. 3.0; 3 cr. Administrative theories and application to extension; function of the administrator; case studies.

314 *Evaluation in Extension Work*. 3.0; 3 cr. The place and types of evaluation in extension; preparation and uses of evaluation plan.

322 *Advanced Farm Management*. 3.0; 3 cr. Prerequisites: 212 and 241, or consent of instructor.

326 *Economics of Agricultural Production and Resource Use*. 3.0; 3 cr. Prerequisites: Econ. 211 and Math 101, or consent of instructor.

331 *Farm Credit*. 3.0; 3 cr. Prerequisites: 212 and Econ. 212 and 227, Bus. Admin. 227 or consent of instructor.

342 *Farmer Cooperative Societies*. 3.0; 3 cr. Organizing farmers for higher income through improved resource use and competitive position. Prerequisite: consent of instructor.

352 *Advanced Agricultural Marketing*. 3.0; 3 cr. Behavior of marketing firms, technological innovation and the marketing development process. Prerequisite: consent of instructor.

353 *International Agricultural Trade*. 3.0; 3 cr. Resource endowments, product specialization and promotion, facilitating institutions and trade documentation. Prerequisite: consent of instructor.

355 *Agricultural Price Analysis*. 3.0; 3 cr. Market data assembly and analysis; marketing management; governmental regulation and policy. Prerequisite: consent of instructor.

361 *Land Economics*. 3.0; 3 cr. Natural resource use; land reform; land tenure. Prerequisite: 212.

372 *Agricultural Policy*. 3.0; 3 cr. Governmental programs and policies for agriculture and the food industry; implications for modernization. Prerequisite: consent of instructor.

373 *Economics of Agricultural Development*. 3.0; 3 cr. Extensive readings in agricultural development. Prerequisites: AES 286, Econ. 211, 212 and Econ. 237, or consent of instructor.

381 *The Rural Community and its Development*. 3.0; 3 cr. The meaning and nature of the "community"; characteristics of the community development process and the principles involved in it.

382 *Applied Rural Sociology*. 3.0; 3 cr. Relationship of change agents to the client system; introduction of change.

383 *Continuity and Change in Rural Society*. 3.0; 3 cr. Social and cultural resistance to change in rural areas; theories of change and their implications for rural development programs.

384 *Sociological Aspects of Migration and Land Settlement*. 3.0; 3 cr. Factors influencing migration and land settlement schemes, with emphasis on Bedouin settlement in the Middle East.

389 *Research Methodology in Agricultural Social Sciences*. 3.0; 3 cr. Methods for preparing research proposals for field studies.

391-392 *Current Problems in Agricultural Social Sciences*. 3.0; 3 cr each.

397 *Seminar in Agricultural Social Sciences*. 1.0; 1 cr. Current topics in the agricultural social sciences.

399 *M.S. Thesis*.

DEPARTMENT OF ANIMAL PRODUCTION AND PROTECTION

Chairman: Asmar, J.

Professors: Bhattacharya, A.; Dagher, N.; Schwulst, F.

The Department of Animal Production and Protection (APP) offers undergraduate courses for students registered for the B.S. degree in Agriculture or in related fields. Undergraduate Agriculture students electing to major in APP will, in addition to the Core Requirements, take 29-30 credits of advanced courses offered in the Department as well as in Food Technology and Nutrition, Biology, Tropical Health, and Bacteriology.

Graduate study programs leading to the M.S. degree are offered in the following majors: *Animal Production*, *Poultry Production*, and *Nutrition* (under the Interfaculty Nutrition Program described on page 266 of this catalogue).

222 *General Livestock Production*. 3.3; 4 cr. Modern principles and practices in beef, sheep and dairy production.

226 *Poultry Production*. 2.3; 3 cr. Modern principles and practices in poultry production.

241S *Principles of Dairying*. 3.4; 3 cr. Management, housing, feeding, breeding and record keeping in dairy production. Prerequisite: 222.

242 *Beef and Sheep Production*. 2.3; 3 cr. Breeding, feeding, and management of cattle and sheep. Prerequisite: 222.

244 *Meats and Meat Processing*. 2.3; 2 cr. Slaughtering, cutting and storage of beef, mutton and lamb.

271 *Ruminant and Non-Ruminant Nutrition*. 4.0; 3 4 cr. Structure and functioning of digestive systems of livestock and poultry. Bioenergetics, nutritional deficiencies and nutrient requirements of farm animals. Prerequisite: FTN 221.

274S and **275** *Anatomy and Physiology of Domestic Animals I and II*. 3.0; 3 cr each. Structure and function of tissues, organs and physiological systems of domestic animals.

276 *Feeds and Feeding*. 1.3; 2 cr. Characteristics, conservation and preparation of feeds. Feeding various classes of livestock. Prerequisite: FTN 221.

- 277 Animal Breeding.** 2.0; 2 cr. Prerequisite: Biology 243, or consent of instructor.
- 280 Diseases of Domestic Animals.** 3.0; 3 cr. Etiology, prevention and control, economic and public health significance of diseases of domestic animals. Prerequisite: Biology 274.
- 299 Undergraduate Tutorial.** 1-3 cr. Library or laboratory research in a specialized topic. Prerequisites: third year standing and consent of instructor.
- 300 Graduate Tutorial.** 1-3 cr. Special problem.
- 301 Feed Analysis.** 1.3; 2 cr. Standard analysis of feed and use of analytical data in feed evaluation. Prerequisite: Chemistry 201.
- 302 Vitamins and Minerals in Animal Nutrition.** 3.0; 3 cr. Chemistry, metabolism, requirements and interrelationship of vitamins and minerals in domestic animals. Prerequisite: FTN 221.
- 310 Fundamentals of Immunology.** 2.3; 3 cr. The immune phenomenon: cellular and molecular aspects, kinetics. Immunological procedures in biological research. Prerequisites: 280, FTN 261, 263 and 391, or consent of instructor.
- 314 Advanced Animal Breeding.** 3.0; 3 cr. Prerequisite: 277.
- 331 Physiology of Reproduction.** 2.3; 3 cr. The reproductive process in mammals, including endocrinology, gametogenesis, fertilization and sterility. Prerequisite: 277, or consent of instructor.
- 334 Advanced Poultry Nutrition.** 2.3; 3 cr. Recent developments in poultry nutrition. Design and implementation of poultry nutrition experiments. Prerequisite: 271.
- 335 Advanced Avian Physiology.** 2.3; 3 cr. Relationships between physiological factors and performance in avian species. Prerequisites: 226 and Biol. 216, or consent of instructor.
- 336 Ruminant Nutrition.** 3.0; 3 cr. Recent advances in the nutrition of cattle and sheep. Prerequisite: 271.
- 385-386 Special Seminar in Animal Science.** 1.0; 1 cr each. Reports and discussion of selected topics in animal science.
- 399 M.S. Thesis.**

DEPARTMENT OF CROP PRODUCTION AND PROTECTION

Chairman: Henderson, H.

Professors: Abu Shakra, S.; Barnard, E.; Batal, K.; Bolton, C.; Bray, D.; Kavar, N.; Khalidy, R.; Nasr, H.; Saad, A.; Saghir, A.; Talhouk, A.; Weltzien, H.

Lecturer: Chaudhary, S.

Instructor: Gaiser, D.

The Department of Crop Production and Protection (CPP) offers courses in five areas: Agronomy, Entomology, Horticulture, Mechanization, and Plant Pathology. At least one course from each of these areas is required for all undergraduate students in the School of Agriculture. The Department offers majors at the B.S. level in *Agronomy* and *Horticulture*. At the graduate level, curricula are available for majors in *Agricultural Mechanization*, *Agronomy*, *Entomology*, *Horticulture* and *Plant Pathology* for the M.S. degree, and a major in *Agronomy* for the Ph.D. degree.

211S Agricultural Mechanics. 0.6; 2 cr. Fabrication methods applicable to agricultural equipment and structures.

- 221** *Applied Entomology*. 2.3; 3 cr. Insect morphology, anatomy and biology in relation to pest control.
- 222** *Principles of Agronomy*. 3.3; 4 cr. Production of major field crops ; botany, physiology, seeds and cultural practices.
- 223** *Principles of Plant Pathology*. 2.3; 3 cr. Occurrence, nature, life-cycles and of plant pathogens and diseases. Prerequisite : Biol. 274, or consent of instructor.
- 224** *General Horticulture*. 2.3; 3 cr. Principles and practices in the production of vegetables, ornamentals and fruits.
- 226** *Agricultural Machinery*. 1.6; 3 cr. Principles of operation and care of farm field machinery and power units.
- 240** *Taxonomy of Economic Plants*. 1.6; 3 cr. Identification and classification of economic plants according to their natural relationships.
- 241S** *Small Power Units*. 2.5; 3 cr. Selection, operation, and care of electric motors, pumps and small internal combustion engines for agricultural applications.
- 245S** *Plant Protection*. 2.5; 3 cr. Observation and study of plant diseases and insect pests in the field with emphasis on recognition, evaluation and control. Prerequisites : 221 and 223.
- 246** *Introduction to Pesticides*. 2.0; 3 cr. Survey of pesticides comonly used in agriculture ; chemistry, mode of action, relation of structure to activity, metabolism and decomposition.
- 247S** *Vegetable Production*. 3.4 ; 3 cr. Classification, identification and cultural practices of important vegetables of the area. Prerequisite : 224, or consent of instructor.
- 248** *Ornamental Horticulture*. 2.3 ; 3 cr. Principles of production of flowers and shrubs of commercial importance in the Middle East.
- 255** *Plant Breeding*. 2.0; 2 cr. Application of genetic principles and allied subjects to crop improvement. Prerequisite : Biol. 243.
- 261** *Seed Technology*. 1.3; 2 cr. Seed development, identification, sampling, physical purity, germination ; tests of quality.
- 263** *Shop Management*. 1.3; 2 cr. ; alternate years. Planning physical and managerial requirements for establishing and operating agricultural service centers.
- 264** *Weed Science*. 2.0; 2 cr. Weeds and their control ; emphasis on herbicides and their fate in plants and soils.
- 270** *Agricultural Structures*. 2.3; 3 cr. Economic, structural, environmental, and functional aspects of agricultural buildings.
- 271** *Advanced Mechanics*. 1.3; 2 cr ; alternate years. Shop construction techniques including welding, drawing, sheet metal, and farm carpentry.
- 272** *Advanced Agricultural Machinery*. 1.3; 2 cr ; alternate years. Selection, adjustment, operation and economics of agricultural machinery. Prerequisite : CP 226, or consent of instructor.
- 273** *Advanced Farm Power*. 1.3; 2 cr ; alternate years. Techniques and problems concerning power units and tractor operation, service, repair and maintenance. Prerequisite : CP 226, or consent of instructor. Offered alternate years.
- 275** *Subtropical Fruit Production*. 3.0; 3 cr.
- 276** *Plant Propagation*. 2.3; 3 cr. Methods and principles of seedage and asexual propagation of horticultural crops.

- 281** *Deciduous Fruit Production*. 3.0; 3 cr. Principles and practices underlying propagation, cultivation, pruning, fertilizing and handling of deciduous fruit orchards.
- 286** *Forage Crops*. 2.0; 2 cr. Establishment and management of grass and legume crops for hay, silage and pasture.
- 287** *Crop Production*. 3.0; 3 cr. Adaptation, distribution, production and improvement of small grain and other field crops.
- 290** *Seed Production*. 2.0; 2 cr. Principles and factors involved in the production, harvesting, processing, and certification of seed for sowing.
- 291** *Crop Ecology*. 3.0; 3 cr. The environment and the plant. Plant communities, their nature as indicators of habitat-types. Genecology of crops; competition and adaptation.
- 293** *Plant Diseases of Economic Importance*. 3.0; 3 cr. Biology, etiology and control of plant pathogens. Prerequisite : as for 223.
- 299** *Undergraduate Tutorial*. 1-3 cr. Directed study. Prerequisite : third year standing.
- 300** *Graduate Tutorial*. 1-3 cr. Research or advanced discussion of special problems.
- 301** *Research Methods in Plant Sciences*. 0.6; 2 cr. Basic laboratory procedures used in plant sciences.
- 305** *Chemistry of Pesticides*. 3.0; 3 cr. Lectures and assigned reading on the chemistry of insecticides, fungicides, herbicides and related materials.
- 307** *Advanced Crop Production*. 3.0; 3 cr. Prerequisite : 288.
- 308** *Advanced Economic Entomology*. 3.0; 3 cr. Principles underlying chemical and biological control of insects, stressing the upsetting of biological equilibria through improper use of insecticides.
- 309** *Advanced Vegetable Production*. 3.0; 3 cr. Recent advances in vegetable production. Prerequisite : 247S or consent of instructor.
- 311** *Insect Transmission of Plant Diseases*. 3.0; 3 cr. Insects and mites as transmitters of infectious and non-infectious plant diseases ; morpho-biological adaptations favoring transmission. Prerequisite : consent of instructor.
- 312** *Advanced Principles and Methods in Plant Pathology*. 2.3; 3 cr. Principles of plant infection ; physiology of host-parasite relationships ; modern methods of research.
- 316** *Seed Physiology*. 2.3; 3 cr. Physiology of flowering, seed development, germination, dormancy and senescence. Prerequisite : 261.
- 317** *Plant Parasitic Fungi and Bacteria*. 2.3; 3 cr. Morphology, taxonomy, ecology and identification.
- 318** *Plant Parasitic Viruses and Nematodes*. 3.0; 3 cr. Fundamental and practical aspects of plant virology and nematology.
- 319** *Advanced Plant Genetics*. 2.3; 3 cr. Theories and principles of plant inheritance.
- 320** *Insect Toxicology*. 3.0; 3 cr. General principles of toxicology; modes of action of substances toxic to insects. Prerequisite : 246 or 305.
- 324** *Cytogenetics of Field Crops*. 2.3; 3 cr. Cytological and genetic effects on variations in chromosome structure and number.
- 325** *Advanced Fruit Handling*. 3.0; 3 cr. Fruit quality in relation to methods of production, physiology, handling and storage.

- 326** *Advanced Fruit Production*. 3.0; 3 cr. Applied studies ; history, principles and practices of fruit production.
- 328** *Crop Anatomy*. 2.3; 3 cr. Structure and functions of plant tissues, their origin and differentiation. Organization and differentiation of plant organs with emphasis on crop plants.
- 331** *Advanced Plant Breeding*. 3.0; 3 cr. Principles, techniques, and problems in crop improvement. Prerequisite : 255.
- 332** *Field Plot Technique*. 2.3; 3 cr. Application of statistical design and analysis to agricultural experiments.
- 335** *Mode of Action of Herbicides*. 2.0; 2 cr. Absorption, translocation, selectivity and mechanisms of toxic action of herbicides and their fate in plants and soils. Prerequisite : 264.
- 336** *Advanced Crop Physiology*. 3.0; 3 cr. Physiological aspects of crop and fruit development including hormones, uptake and translocation of minerals, photoperiodism and flowering, environmental stresses and pollution effects.
- 342** *Production of Special Horticultural Crops*. 3.0; 3 cr. Principles and practices involved in the production of specialized crops, such as grapes and mangos, which have worldwide importance.
- 370** *Materials Handling*. 2.0; 2 cr. Principles and practices in the transporting, conveying, grading and processing of agricultural materials and products.
- 372** *Agricultural Machinery Design*. 3.0; 3 cr ; alternate years.
- 373** *Farm Power Design*. 3.0; 3 cr ; alternate years. Elements of design in heat engines and electric motors including development, transmission and use of power for farming.
- 385** *Seminar in Current Topics in Plant Science*. 1.0; 1 cr. Reviews of recent literature relating to selected topics.
- 399** *M.S. or Ph.D. Thesis*.

DEPARTMENT OF FOOD TECHNOLOGY AND NUTRITION

Chairman : Cowan, J.

Professors : Akrabawi, S. ; Hallab, A. ; Tannous, R.

Lecturers : Mameesh, M. ; Pascoe, E.

The Department of Food Technology and Nutrition (FTN) offers an undergraduate major in *Food Technology and Nutrition* based on a broad background basic courses in the biological and agricultural sciences. Course offerings in the Department stress the interrelationship of the disciplines of food technology and nutrition as well as problems of the area related to nutritional deficiencies, food quality and food processing.

The Department also offers a program leading to the M.S. degree with majors in : a) *Food Technology*, with options in food chemistry and toxicology, food processing, and food microbiology ; and b) *Nutrition*, under the Interfaculty Nutrition Program described on page 266 of this catalogue.

210 *Brief Survey of Foods and Nutrition*. 2.0; 2 cr. For non-Agriculture students only.

219S *Introduction to Agricultural Biochemistry*. 5.0; 3 cr. Prerequisite : Chem. 208. Credit not given for both 219S and 261.

- 221** *Basic Principles of Nutrition*. 3.0; 3 cr. Prerequisite : 219S or 261.
- 261** *Introductory Biochemistry*. 3.0; 3 cr. Prerequisite : Chem. 208. Credit not given for both 261 and 219S.
- 263** *Biochemistry Laboratory*. 0.6; 2 cr. Prerequisite: 219S or 261, or concurrent registration in either course.
- 265** *Food Chemistry*. 3.3; 4 cr. Chemical, physical and sensory properties of foods. Prerequisite : Chem. 208.
- 274** *Human Nutrition*. 3.0; 3 cr. Nutritional requirements ; growth ; malnutritional interrelationships. Prerequisite: 221.
- 287** *Principles and Methods of Food Preservation*. 2.3; 3 cr.
- 288** *Technology of Foods and Food Products*. 3.3; 4 cr. Technical aspects of food processing, stressing unit operations. Prerequisite : 287.
- 290** *Traditional Methods of Food Processing*. 2.3; 3 cr. Scientific basis of common traditional processing and preservation methods used in developing countries. Prerequisite: 287.
- 298** *Senior Project in Nutrition and Food Science*. 1.6; 3 cr. Directed laboratory or field project. Prerequisite : third year standing.
- 299** *Undergraduate Tutorial*. 1-3 cr. Directed study. Prerequisites : third year standing and consent of instructor.
- 300** *Graduate Tutorial*. 1-3 cr. Directed study. Prerequisite : consent of instructor.
- 370** *Advanced Food Technology*. 3.0; 3 cr. Prerequisite : 287.
- 377** *Applied Nutrition*. 3.0; 3 cr. Nutrition, food and agriculture ; public health and medical aspects of nutrition ; applied nutrition programs. Prerequisite: 221, or consent of instructor.
- 379** *Advanced Nutrition*. 3.0; 3 cr. Physiological and biochemical aspects underlying nutritional requirements and disorders in the human. Prerequisite: 274, or consent of instructor.
- 385** and **386** *Seminar in Food Technology and Nutrition*. 1.0; 1 cr each. Reports and discussions. Prerequisite : graduate standing.
- 391** *Laboratory Methods*. 0.9 ; 3 cr. Assay techniques and instrumentation.
- 399** *M.S. Thesis*.

DEPARTMENT OF SOILS AND IRRIGATION

Chairman : Sherman, D.

Professors : Atallah, N. ; Macksoud, S. ; Paeth, R. ; Sayegh, A.

The Department of Soils and Irrigation (SI) offers an integrated undergraduate major for the training of students in the various aspects of soils and irrigation. Introductory courses in these subjects are offered to all Agriculture students within the framework of the Core curriculum. Specialized and advanced courses are offered to students wishing to major in *Soils and Irrigation* at the undergraduate level.

The Department also offers a program leading to a M.S. degree with a major in either *Soils* or *Irrigation*. The program emphasizes the importance of subject matter related to the major with the intention of training students in the broader aspects of irrigated agriculture and soil management.

213 *Physical Properties of Soils.* 2.3; 3 cr. Soil physical characteristics, soil formation, morphology and horizons ; soil-water relations, movement and relationships to plant growth.

216 *Soil Chemical Properties.* 2.3; 3 cr. Mineralogical and chemical properties of soils; soil colloids, soil reaction, salinity, organic matter and organisms and their relationships to fertility.

228S *Irrigation Principles and Practices.* 3. 4 ; 3 cr. The fundamentals of irrigation, land preparation, water measurement, conveyance and control, farm irrigation methods.

261 *Hdraulics.* 3.0; 3 cr. Principles of hydraulics and their application in the design of irrigation systems.

262 *Soil Fertility.* 2.3; 3 cr. Use of fertilizers and soil amendments in soil fertility management programs.

263 *Irrigation Water Requirements.* 3.0; 3 cr. Water use of crops ; methods utilized for determining irrigation requirements at farm and project levels.

267 *Soil Conservation.* 3.0; 3 cr. Evaluation and control of wind and water erosion on cultivated, range and forested land.

275 *Chemistry of the Soil System.* 2.3; 3 cr. Soil chemistry with emphasis on the diagnosis, reclamation and management of salt affected soils.

280 *Soil Genesis and Survey.* 2.3; 3 cr. Process of formation and geographical distribution of soils. Soil profiles, soil mapping, interpretation of survey data and aerial photographs.

299 *Undergraduate Tutorial.* 1-3 cr. Directed study. Prerequisites : Third year standing and consent of instructor.

300 *Graduate Tutorial.* 1-3 cr. Special problem.

303 *Weathering and Soil Genesis.* 3.0; 3 cr. Rock and mineral weathering as related to genesis, chemistry, fertility management and mineral composition of soils.

305 *Clay Mineralogy.* 2.3; 3 cr. Structure and identification of clay minerals in relation to the chemistry, physics, fertility and genesis of soils.

312 *Advanced Soil Fertility.* 3.0; 3 cr. Current developments, theories and research ; nutrient availability and absorption ; crop responses and fertilizer requirements.

316 *Ground Water Hydrology.* 4.0; 4 cr. Occurrence, distribution and movement of ground water ; well hydraulics and design ; ground water basin management.

320 *Irrigation Project Planning.* 3.3 ; 4 cr. Policies for planning and development of irrigation projects ; study and analysis of various irrigation systems and structures.

326 *Irrigation System Design.* 4.0; 4 cr. Hydraulic design of conveyance, control and protective structures of irrigation systems. Prerequisite : 2161.

330 *Irrigation Project Management.* 4.0; 4 cr. Theory and application of management policies and practices, including operation and maintenance of irrigation systems.

399 *M.S. Thesis.*

PROGRAM IN GENERAL AGRICULTURE

Chairman : Cowan, J.

Professors : Abu Shakra, S. ; Khalidy, R. ; Swenson, S.

The undergraduate program leading to a major in *General Agriculture (Agr.)* is offered to the student whose interest is in a broad education in the agricultural sciences rather than in a special area. The undergraduate courses offered under the program are required for all undergraduate students in the Faculty of Agricultural Sciences. There is no graduate degree offered in *General Agriculture*. Agr. 301 and either 395 or 396 are required for all graduate students.

201 *Agricultural Orientation*. 1.0; 1 cr. An introduction to agriculture in the Middle East and to agricultural activities at the University.

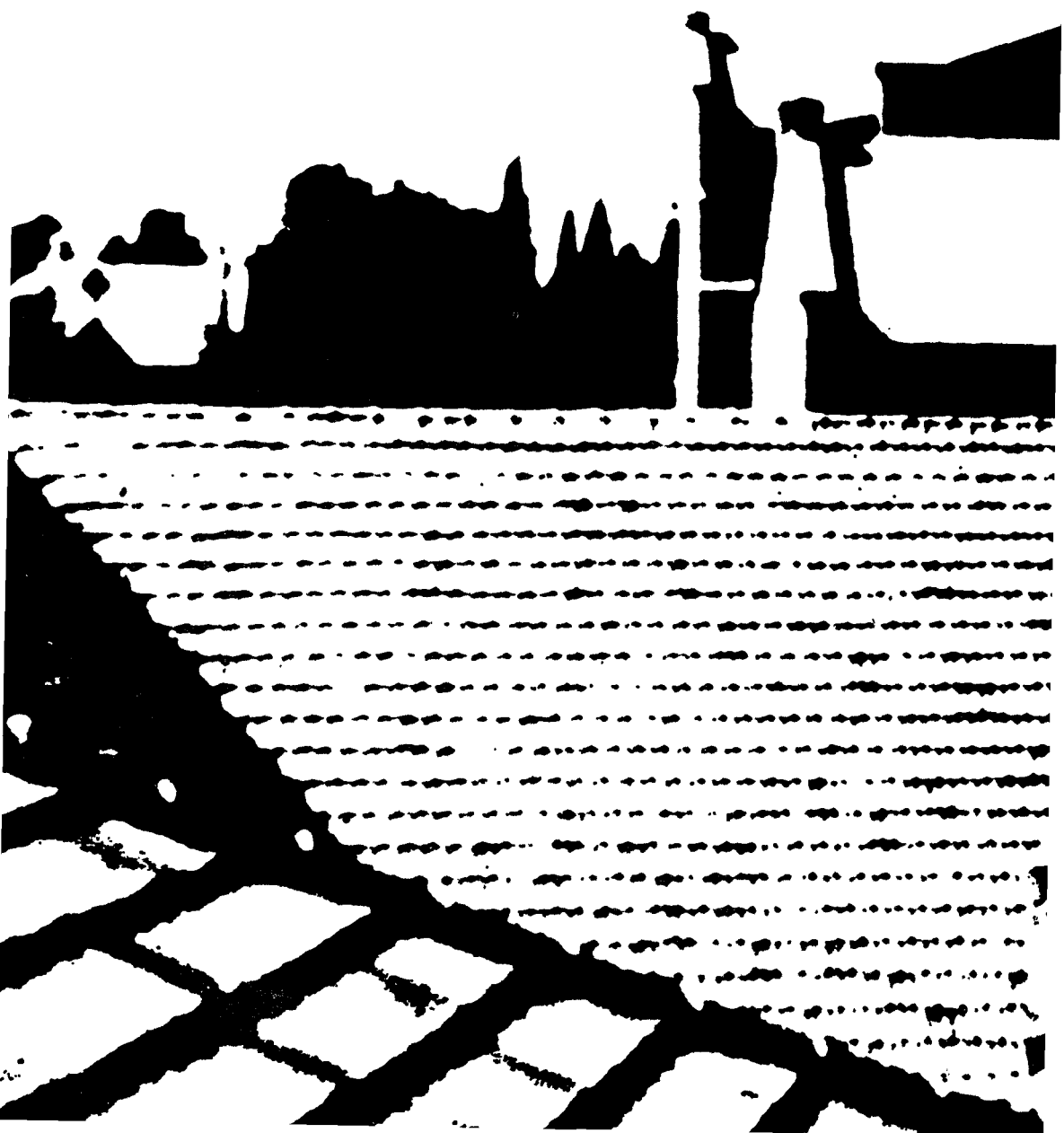
222 and **222S** *Farm Practices*. 0.6 ; 2 cr each. Practical experience in operational activities and management decisions essential in modern farming.

295 and **296** *Current Topics in Agricultural Sciences*. 1.0; 1 cr. Each student is required to give at least one presentation on a chosen subject. Prerequisite : third year standing.

301 *Statistical Methods in Agriculture*. 2.3 ; 3 cr. Prerequisite : consent of instructor.

395 and **396** *Graduate Seminar*. 1.0 ; 1 cr each Reports and discussions of research findings.

GRADUATE STUDY





GRADUATE STUDY

GENERAL STATEMENT

Graduate study is closely linked with research. Graduate students are introduced to areas and problems of current research, and are expected to approach them in a critical and independent manner. Candidates for the degree of Doctor of Philosophy are expected to make an original contribution to knowledge in their fields.

Study leading to the Master's degree was begun at the American University of Beirut in 1904, and the first Master's degree was awarded in 1905. Study leading to the degree of Doctor of Philosophy was initiated in 1961, and the first Ph.D. degree was granted in 1966. Graduate study is under the direction of the Board of Graduate Studies, with the assistance of the Graduate Committees of the various Faculties. The Board of Graduate Studies is responsible to the University Senate.

AREAS IN WHICH GRADUATE STUDY IS OFFERED

The University offers both the Master's degree and the degree of Doctor of Philosophy. The Master's degrees offered are Master of Arts (M.A.), Master of Business Administration (M.B.A.), Master of Engineering (M.E.), Master of Public Health (M.P.H.), Master of Science (M.S.) and Master of Science in Pharmacy (M.S. in Pharmacy).

I. Master's degrees are offered in the following areas of specialization :

INTERFACULTY PROGRAM

Nutrition (M.S.)

FACULTY OF ARTS AND SCIENCES

Anthropology (M.A.)

Arabic Language and Literature (M.A.)

Archaeology (M.A.)

Biology (M.S.)

Business Administration (M.B.A.)

Chemistry (M.S.)

Comparative Literature (M.A.)

Development Administration (M.A.)

Economics (M.A.)

Education (M.A.)

English Language (M.A.)

English Literature (M.A.)

Geology (M.S.)

History (M.A.)

Marine Sciences (M.S.)

Mathematics (M.A. and M.S.)

Middle Eastern Studies (M.A.)

Philosophy (M.A.)

Physics (M.S.)

Political Studies (M.A.)

Psychology (M.A.)

Public Administration (M.A.)

Religious Studies (M.A.)

Sociology (M.A.)

Statistics (M.A. and M.S.)

FACULTIES OF MEDICAL SCIENCES

Bacteriology and Virology (M.S.)
 Biochemistry (M.S.)
 Epidemiology (M.S.)
 Human Morphology (M.S.)
 Parasitology (M.S.)
 Pharmaceutical Chemistry (M.S. in Pharmacy)
 Pharmacodynamics and Toxicology (M.S. in Pharmacy)
 Pharmacognosy (M.S. in Pharmacy)
 Pharmacology and Therapeutics (M.S.)
 Pharmacy (M.S. in Pharmacy)
 Physiology (M.S.)
 Public Health (M.P.H.)

FACULTY OF ENGINEERING AND ARCHITECTURE

Civil Engineering (M.E.)	Mechanical Engineering (M.E.)
Electrical Engineering (M.E.)	Sanitary Engineering (M.E.)

FACULTY OF AGRICULTURAL SCIENCES

Agricultural Economics (M.S.)	Food Technology (M.S.)
Agricultural Mechanization (M.S.)	Horticulture (M.S.)
Agronomy (M.S.)	Irrigation (M.S.)
Animal Pathology (M.S.)	Plant Pathology (M.S.)
Animal Production (M.S.)	Poultry Production (M.S.)
Entomology (M.S.)	Rural Sociology (M.S.)
Extension Education (M.S.)	Soils (M.S.)

II. Ph.D. degrees are offered in the following areas of specialization :

FACULTY OF ARTS AND SCIENCES

Arab History	Chemistry
Arabic Literature	Physics

FACULTIES OF MEDICAL SCIENCES

Biochemistry

FACULTY OF AGRICULTURAL SCIENCES

Agronomy

PROCEDURE FOR APPLYING FOR ADMISSION TO GRADUATE STUDY

Application forms for admission to graduate study can be obtained from the Office of the Registrar, American University of Beirut, Beirut, Lebanon. All applications for admission should be made on these forms, and returned to the Office of the Registrar. Any subsequent correspondence should also be addressed to the Office of the Registrar.

Completed application forms should reach the Office of the Registrar by May 1 for students who wish to begin graduate study in the summer session or in the first semester of the academic year. Students who wish to begin graduate study in the second semester should ensure that completed application forms reach the Office of the Registrar by January 1.

REQUIREMENTS FOR ADMISSION TO GRADUATE STUDY

Graduate study is offered only on a selective basis for students who have shown distinct academic ability.

To be admitted to graduate study, an applicant must hold a Bachelor's Degree from the American University of Beirut (or an equivalent degree from another recognized institution). An average of at least 80 in the major field of study (or a performance at an equivalent standard if the degree was obtained elsewhere) is required for admission to the Master's program. However, in exceptional cases, graduates of the American University of Beirut with an average between 75 and 80 in their major field of study (or with an equivalent performance at another institution) may be admitted to the Master's program *on probation*. The conditions for subsequent removal of probation are described in the section on Probation and Dismissal below.

For admission directly to Ph.D. study upon completion of the Bachelor's degree at this University, an applicant must have an average substantially above 80 in his major field of study (or a performance at an equivalent standard if the degree was obtained elsewhere). Applicants for Ph.D. study who hold the Master's degree must have demonstrated at the Master's level both outstanding academic ability and the potential to conduct scholarly research.

Before admission to graduate study, all students must pass the English Entrance Examination. This examination is administered by the University, and the passing score is 575 (600 for students entering the program for Teaching English as a Foreign Language : TEFL). Applicants who score between 500 and 574 in the English Entrance Examination (between 550 and 599 for students entering the TEFL program) may be admitted to graduate study, on condition that they take and pass a special non-credit course in English Communication Skills for Graduate Students (English 202) during the first semester of graduate study.

Exemption from the English Entrance Examination is given to applicants who hold a degree from the American University of Beirut, or who have completed at least two years of full-time study in residence in a recognized institution in Australia, Canada, the Irish Republic, New Zealand, the United Kingdom or the United States.

For further information on the requirements for English, see pages 18 to 19 of this catalogue.

SUPERVISION

During his first semester of graduate study, each student will be assigned to an Advisor or Advisors by the Department or Program in which he is enrolled. The Advisor will guide the student in the initial phase, in planning his studies and selecting his courses. At a later date the student will be assigned to a Thesis Advisor. The Thesis Advisor will normally be the Chairman of the Examining Committee.

COURSES AND GRADES

Courses taken as a part of a student's graduate study program are of three categories :

- 1) *Graduate level courses* — these are normally numbered 300 and above, except in the Faculty of Engineering and Architecture which has its own numbering system for graduate courses (see page 207 of this catalogue).
- 2) *Undergraduate courses taken for graduate credit* — these must be of at least junior level and, if appropriate, a limited number of such courses can be considered for graduate credit.
- 3) *Prerequisite courses* — these do not carry graduate credit but are taken to make up deficiencies in the student's background.

The minimum passing grade for a course taken for graduate credit (categories 1 and 2 above) is 70. Students in graduate study are required to maintain a cumulative average of at least 80 in *all* courses taken for graduate credit. The minimum passing grade for a prerequisite course is 60 ; however, a Department or Program may set a higher minimum passing grade for such courses taken by its students. Grades for prerequisite courses will be reported as either *Pass* (P) or *Fail* (F).

A student who is absent without excuse from more than one-third of the number of sessions in any one course, or who fails to sit for scheduled examinations or to submit scheduled written or oral work, will be given a grade of 40 for the course.

PROBATION AND DISMISSAL

A student may be placed on academic probation if :

- 1) He is admitted to graduate study *on probation*;
- 2) He fails in any course taken for graduate credit;
- 3) He does not maintain the cumulative averages mentioned in the section above on Courses and Grades;
- 4) The Department or Program in which he is enrolled recommends probation, even though his cumulative average may be adequate.

The probation of a student may be removed if both of the following conditions are satisfied :

- 1) At the end of any semester he passes in all courses and obtains the cumulative averages mentioned in the section above on Courses and Grades;
- 2) The Department or Program in which he is working is satisfied with the quality of the student's work.

A student may be discontinued from graduate study if:

- 1) He fails to remove a probation within a period of two semesters in which he is taking courses for credit;
- 2) In the view of the Department or Program in which he is enrolled, his work is inadequate, irrespective of grades obtained.
- 3) He fails either the General Examination or the Final Oral Examination twice.

EXAMINING COMMITTEE

At some time after a student has been admitted to graduate study, but before he takes his General Examination, the Faculty Graduate Committee, upon recommendation of the Department or Program in which the student is enrolled, will appoint an Examining Committee of at least three members. Whenever possible, external examiners will be included in the Committee. The Examining Committee should approve the student's thesis topic and review from time to time the progress of his research. Also, the Examining Committee shall read and evaluate the student's thesis and conduct the final oral examination.

GENERAL EXAMINATION

At some time after a student has completed most of the course requirements for his degree, he must pass a General Examination. The timing of the General Examination will be set by the Department or Program concerned. The purpose of this examination is to ascertain the student's knowledge of his field and related areas, his acquaintance with methods and techniques of research, and his ability to organize and present material. The examination is not restricted to the content of courses.

If a student does not pass the General Examination, he may take it a second time after a period of at least three months. However, if he does not pass at the second attempt, he will be discontinued from graduate study.

DEPOSIT OF THE THESIS IN THE LIBRARY

When a student passes the Final Oral Examination, he is required to deposit two copies of his thesis, complete with abstract and with the signatures of the members of the Examining Committee, at the Central Jafet Memorial Library. One of these two copies should be the original. A receipt for these copies must be received by the Office of the Registrar from the Library before the student can receive his degree. The Library will bind, catalogue and shelve the two copies of the thesis.

SPECIFIC REQUIREMENTS FOR THE MASTER'S DEGREE

As well as satisfying the general requirements set out in the preceding sections for all students in graduate study, students working towards a Master's degree must fulfill the requirements described below.

It should also be noted that individual Departments and Programs may impose further requirements. Information on these can be found in the sections of the catalogue dealing with the Departments and Programs concerned.

Course Requirements

A student working for the Master's degree must complete at least 21 course credits. Not all of the credits need be in courses offered by the Department or Program in which he is enrolled, but all of them must be in courses which, in the judgment of the Department or Program, are relevant to the field in which the student is specializing.

All of the required course credits must be in courses of at least the junior level or equivalent, and at least 15 of the credits must be in *graduate level* courses. Students with deficiencies in their undergraduate preparation may be required to take additional course credits, as set by the Department or Program concerned.

Students who have been admitted to an institution of higher education in Lebanon without a certificate recognized for admission to the American University of Beirut, but who have obtained a Sophomore Diploma recognized by the Lebanese Government as equivalent to the Lebanese Baccalaureate Part II, plus a Bachelor's Degree, and who have entered graduate study on this basis, will be required to complete at least 51 course credits for the Master's degree.

Not more than 6 credits towards the Master's degree may be transferred from *graduate level* courses taken at another institution or from excess credits in *graduate level* courses earned at this University above the requirements for the Bachelor's degree. Such transfers must be approved by the Departments or Programs and by the Faculty Graduate Committee.

Language Requirements

There are no University language requirements for the Master's degree. However, individual Departments and Programs may set their own language requirements, either as a general rule or in specific cases.

Language examinations will be arranged by the Department of European Languages and Literature, or by other bodies approved by the Faculty Graduate Committee.

Residence Requirements

To meet the minimum residence requirements for the Master's degree, a student must register for at least two semesters or one semester and two summers. The minimum residence requirement in the Department of Education can be fulfilled by registering for at least four summers.

All requirements for the Master's degree must be completed within a period of four years after admission to graduate study. Students attending summer sessions only must complete all requirements within a period of six summers after admission to graduate study.

Thesis

To obtain a Master's degree, a student is required to submit a thesis involving critical and independent research on a subject of current interest. Exceptions are made in the following cases:

- 1) A student in the Department of Education may submit a project and complete 9 credits of *graduate level* courses in lieu of the thesis;
- 2) A student who has been admitted to candidacy for the Ph.D. degree may, in some Departments, and with the approval of the Board of Graduate Studies, be awarded the Master's degree upon completing 30 credits of the course require-

ments for the Ph.D., without submitting a Master's thesis. Of the 30 credits, at least 24 must be of *graduate level*;

3) In special cases, a Department or Program may request that 9 credits of *graduate level* course work be substituted for the thesis. Such a request must be approved by the Faculty Graduate Committee and the Board of Graduate Studies.

Except in Departments or Programs in which the medium of instruction is not English, the thesis must be in English.

The thesis must be accompanied by an abstract of from 200 to 600 words. If the thesis is in a language other than English, the abstract must be written both in that language and in English.

Theses should follow the form and style described in K. L. Turabian, *Manual for Writers of Term Papers, Theses, and Dissertations* (University of Chicago Press) or any other form specified by the Department or Program.

Three typewritten copies, unbound but ready for binding, should be submitted by the student to his Thesis Advisor. Of these, one should be the original, and the other two should be copies obtained by any legible and durable form of mechanical reproduction. Additional copies may be required as specified by the Department or Program concerned. The thesis must be submitted to the Thesis Advisor before the Final Oral Examination and not later than October 5, February 5, or May 15, for students who wish to graduate in October, February, or June respectively.

Final Oral Examination

The Final Oral Examination is on the thesis and its field. It must be taken not later than October 20, February 20 or May 30, for students who wish to graduate in October, February, or June respectively.

A single result, *Pass* or *Fail*, is reported for the thesis and the Final Oral Examination. If a student fails, he may resubmit his thesis and sit again for his Oral Examination after a period of at least three months. However, if he does not pass at the second attempt, he will be discontinued from graduate study.

The Final Oral Examination may be held outside Beirut, if approved by both the Department or Program and the Faculty Graduate Committee. In such a case the Chairman of the Examining Committee should be from the Department or Program in which the student is enrolled. In such a case too, the Comptroller's Office of the University must receive a fee of \$50 from the student for each examiner before the examination takes place.

INTERFACULTY M.S. PROGRAM IN NUTRITION

The Interfaculty Graduate Nutrition Program leading to the M.S. degree draws on the resources of various Departments of the Faculties of Agricultural Sciences, Arts and Sciences and Medical Sciences in providing opportunities for study and research in the general field of Nutrition. The Program is administered by the Graduate Committees of the three Faculties concerned in collaboration with an interfaculty Coordinating Committee.

The Program is designed around a core of courses (10 credit hours in nutritional biochemistry, animal physiology and applied nutrition) which provide a foundation for the many scientific aspects of nutrition. At the same time, there is ample scope for the student to specialize in one area of nutrition (e.g., clinical nutrition, food science) by selecting appropriate additional courses and conducting his thesis

research in one of the various Departments involved in specialized research. All other requirements are as defined in the Graduate Program of the Faculty concerned.

To be accepted into the program the student must:

- 1) Meet the general University requirements for admission to graduate study;
- 2) Be recommended by the Coordinating Committee and the Department concerned and accepted by the appropriate Faculty Graduate Committee.

SECOND MASTER'S DEGREE

It is possible for a student to obtain a second Master's degree, provided that he completes all the requirements of the second degree and provided that he spends a minimum of one additional academic year of registered study or its equivalent at the University.

Permission to study towards a second Master's degree must be obtained from the Board of Graduate Studies.

SPECIFIC REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

As well as satisfying the general requirements for all students in the graduate program, students working for the degree of Doctor of Philosophy must fulfill the requirements described below.

It should also be noted that individual Departments and Programs may impose further requirements. Information on these can be found in the sections of the catalogue dealing with the Departments and Programs concerned.

Course Requirements

The Advisor of each student should submit a tentative program of study to the Board of Graduate Studies before the completion of nine credits of course work toward the Ph.D. degree. Such a program should conform to the following requirements:

- 1) A student who holds a Master's degree from this University must complete at least 15 credits of *graduate level* courses beyond those that were required for his Master's degree;
- 2) A student who holds a Bachelor's degree from this University, and who has been accepted to study for the Ph.D. without having obtained a Master's degree, must complete at least 45 course credits of which at least 39 must be in *graduate level* courses;
- 3) A student who holds a degree from another institution will have his degree evaluated by the Department or Program in which he is enrolled and by the Board of Graduate Studies:
 - (i) If his degree is recognized by this University as being at least equivalent to its Master's degree, then he must complete at least 24 course credits at this University of which at least 15 must be in *graduate level* courses. In special cases and with the approval of the Department or Program concerned and the Board of Graduate Studies, fewer than 24 credits may be required;
 - (ii) If his degree is not recognized by this University as being equivalent to its Master's degree, but is recognized as being at least equivalent to its Bachelor's

degree of this University, then if he is accepted to study for the Ph.D. at this University he must complete at least 45 credits of which 39 must be in *graduate level* courses. However, in some cases of this kind it may be possible to transfer up to 12 credits of *graduate level* courses taken at another institution. Such a transfer requires the approval of the Department or Program in which the student is enrolled and of the Board of Graduate Studies.

If more than six years have elapsed since the completion of any course, that course will be scrutinized with particular care before credit can be given for it toward the Ph.D. degree.

Language Requirements

The University language requirements for the degree of Doctor of Philosophy consist of proficiency in one European language, other than English, that is considered by the Department or Program in which a student is enrolled to be relevant to his field of specialization.

Individual Departments and Programs may specify whether they require written proficiency, oral proficiency, or both. They may also require, either as a general rule or in special cases, additional languages.

Language examinations will be arranged by the Department of European Languages and Literature, or by other bodies approved by the Board of Graduate Studies. All language requirements must be satisfied before a student is admitted to candidacy for the degree of Doctor of Philosophy.

Residence Requirements

Completion of a Ph.D. degree will normally involve four years of full-time study or equivalent beyond the Bachelor's degree. To fulfill the minimum residence requirement for the Ph.D., the student must register for at least six semesters beyond the completion of the Bachelor's degree. A non-AUB graduate who is admitted to Ph.D. study on the basis of a Master's degree recognized as being equivalent to that of this University, must register for at least four semesters.

The special demands of a doctoral program require that a student devote a sufficient amount of time continuously to concentrated study and research, with a minimum of outside distraction. Thus, the Ph.D. student should plan to spend at least one academic year in continuous full-time residence on the AUB campus. The timing of this period of full-time work will be specified by the Department or Program concerned.

All requirements for the degree of Doctor of Philosophy must normally be completed within a period of seven years after admission to graduate study, or five years after completion of the Master's degree.

Admission to Candidacy

After a student has completed the requirements listed below, he may be admitted to candidacy for the degree of Doctor of Philosophy. Admission to candidacy signifies that the student is ready to devote his major energies to the subject of his thesis. The requirements for a student to be admitted to candidacy are:

- 1) He must have completed at least two semesters of graduate study;
- 2) He must have a cumulative average of at least 80 in all courses taken for graduate credit;

- 3) He must have passed the General Examination. Details of this examination are given above, page 264.
- 4) He must have passed all language requirements. Details of language requirements are given above, page 268.
- 5) He must have submitted a general plan and provisional title for his intended Thesis. The plan and title must be approved by the Department or Program in which the student is enrolled and by the Board of Graduate Studies. Any subsequent change in plan or title also requires approval.

No student is admitted to candidacy if he is on probation.

Thesis

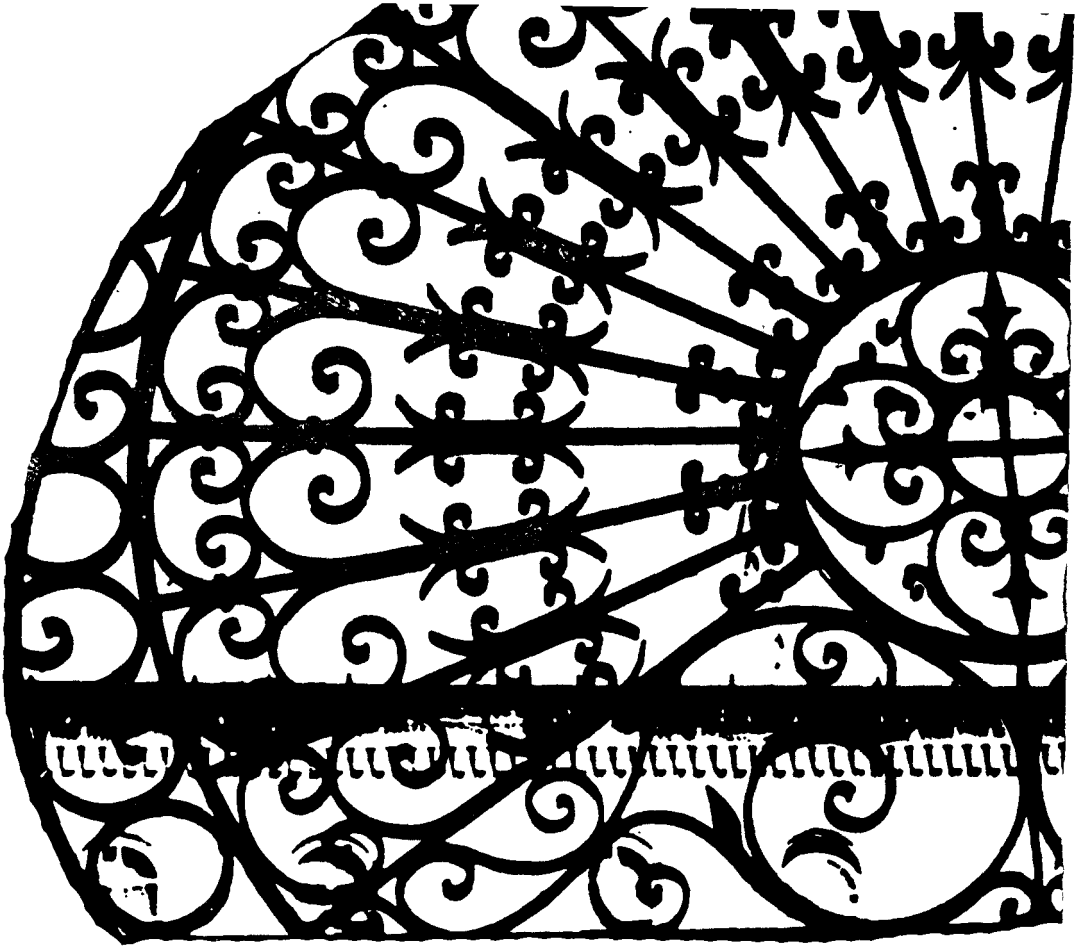
To obtain the degree of Doctor of Philosophy, a student is required to submit a thesis. The thesis should contain the results of independent research, and is expected to make an original contribution to knowledge in its field. The Board of Graduate Studies will normally appoint from outside the University a Thesis Consultant, who will read the thesis and give his evaluation of it.

Regulations concerning language, form, style and presentation, the abstract which must accompany the thesis, and dates of submission are the same as for the Master's thesis, see above, p. 265.

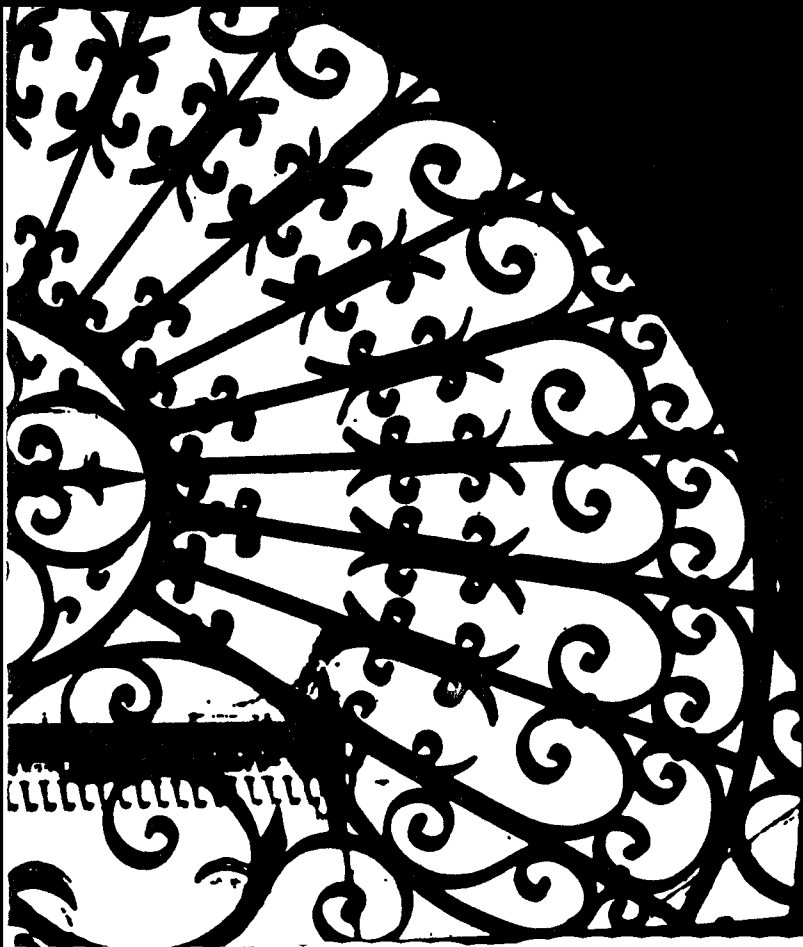
Final Oral Examination

The Final Oral Examination is on the thesis and its field, and is public. It must be taken not later than October 20, February 20, or May 30 for students who wish to graduate in October, February, or June respectively.

A single result, *Pass* or *Fail*, is reported for both the thesis and the Final Oral Examination. If a student fails, he may resubmit his thesis and sit again for his Oral Examination after a period of at least three months. However, if he does not pass at the second attempt, he will be discontinued from study towards the degree of Doctor of Philosophy.



**DIVISION OF
EXTENSION**



**AND
SPECIAL PROGRAMS**

DIVISION OF EXTENSION AND SPECIAL PROGRAMS

Director : Cajoleas, L.

The Division of Extension and Special Programs is the administrative and coordinating center for the extension services of the University. Such services make available the educational competencies of AUB to the countries of the region in the development of human resources.

These services include on-campus programs as well as those in the field. The on-campus programs may be special full-time short courses, institutes, part-time evening courses, seminars, special summer courses, or individualized on-the-job observation-study-training for specialized personnel. Field services include short refresher courses, consultantships, lectures, research advising, surveys, and long range advisory assistance.

Extension services and special programs may be made available by the University upon request to the extent that personnel and facilities are available. Special fees are established for each activity.

Special Evening Programs. These are offered each semester and are designed to meet the needs of adults in the immediate community for further education. Special evening courses and programs are announced in a separate brochure.

Special Summer Courses. Special programs of study (non-degree) are offered as in-service, refresher, or advanced education in areas of interest to the region. The programs differ each summer. During summer 1971 the following programs were offered:

Secondary Teachers Institute: Teaching of Biology—six weeks;

Secondary Teachers Institute: Teaching of General Science—six weeks;

Secondary School Administrators Workshop—six weeks;

Management Development Program—three weeks;

Librarians Institute on Periodical Materials and Services—four weeks;

Colloquium on Higher Education for University Administrators—two weeks;

Regional Food and Nutrition—eight weeks;

Agricultural Extension—three weeks.

Separate brochures are obtainable from the Director.



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TUDENTSSTUDENTSSTUDENTSSTUDEN'



STUDENTS BY SCHOOLS 1971-1972

	Summer Session 1971	Academic Year 1971-1972			Total for Year
		First	Semester	Second	
		Oct. 22	Final	Se- mester	
FACULTY OF ARTS AND SCIENCES					
Special		91	92	70	
Freshman Class		204	205	206	
Sophomore Class	767	678	683	717	
Junior Class		596	598	593	
Senior Class		495	496	452	
Total	767	2064	2074	2038	
Graduates	157	497	503	488	
Career Development Program	—	1	1	1	
Administration Workshop	19	—	—	—	
Colloquium on Higher Education for University Administrators	18	—	—	—	
Librarians Institute on Periodicals Services and Materials	14	—	—	—	
Management Development Program	10	—	—	—	
Secondary Teacher's Institute	30	—	—	—	
Total Special Programs	91	1	1	1	
Total Arts and Sciences	1015	2562	2578	2527	2670

SCHOOL OF MEDICINE

Special	17	15	17	12	
First Year	—	52	52	52	
Second Year	—	47	47	47	
Third Year	49	51	51	51	
Fourth Year	38	38	38	38	
Fifth Year	43	43	43	42	
Total	147	246	248	242	
Graduates	24	27	28	28	
Total Medicine	171	273	276	270	277

SCHOOL OF PHARMACY

Special	—	1	1	1	
First Year	33	34	34	33	
Second Year	35	35	35	36	
Third Year	24	24	24	24	
Fourth Year	1	27	27	27	
Total	93	121	121	121	
Graduates	3	7	7	5	
Total Pharmacy	96	128	128	126	130

	Academic Year 1971-1972				
	Summer Session 1971	First Semester		Second Se- mester	Total for Year
		Oct. 22	Final		
SCHOOL OF NURSING					
Degree Program : Special	—	2	2	5	
First Year	4	6	6	4	
Second Year	18	22	22	17	
Third Year	2	14	14	14	
Fourth Year	—	2	2	2	
Total Degree Program	24	46	46	42	
Diploma Program Special	—	4	4	4	
First Year	41	46	46	44	
Second Year	—	39	39	39	
Third Year	21	21	21	20	
Total Diploma Program	62	110	110	107	
Administration and Teaching Nursing	3	7	7	8	
Total Nursing	89	163	163	157	169

SCHOOL OF PUBLIC HEALTH

Degree Program : First Year	1	5	5	5	
Second Year	4	5	5	4	
Third Year	—	3	4	4	
Total Degree Program	5	13	14	13	
Graduates	4	16	16	16	
Diploma Programs	6	2	2	2	
Non-Degree Programs	35	36	36	35	
Total Public Health	50	67	68	66	69

FACULTY OF ENGINEERING AND ARCHITECTURE

Special	3	18	18	13	
Class of 1976 (Architecture)	—	16	16	19	
Class of 1975	—	123	127	114	
Class of 1975 (Architecture)	18	16	16	16	
Class of 1974	121	102	102	103	
Class of 1974 (Architecture)	10	13	13	12	
Class of 1973	120	113	115	117	
Class of 1973 (Architecture)	7	7	7	7	
Class of 1972	74	83	83	77	
Class of 1972 (Architecture)	15	14	15	15	
Total	368	505	512	493	
Graduates	31	65	65	71	
Total Engineering and Architecture	399	570	577	564	598

	Academic Year 1971-1972			
	Summer Session 1971	First Semester		Second Se- mester Year
		Oct. 22	Final	
FACULTY OF AGRICULTURAL SCIENCES				
Special	5	5	5	8
First Year	34	59	59	42
Second Year	32	30	30	31
Third Year	18	28	28	31
Total	89	122	122	112
Graduates	99	129	136	127
Non-Degree Programs	13	—	—	—
Extension	10	—	—	—
Total Agriculture	211	251	258	270
INTERFACULTY				
Nutrition (Schools of Medicine, Public Health and Agriculture)	28	—	—	—
GRAND TOTAL	2059	4014	4048	3949
				4183

SPECIAL PROGRAMS

Orientation Program	50	93	93	59
X-Ray Program	17	22	24	24
Evening Degree Program	—	4	4	1
Total	67	119	121	84
				136

STUDENTS BY NATIONALITIES**REGULAR PROGRAMS 1971 - 1972**

	Summer Session 1971	Academic Year 1971-1972		Summer Session 1971	Academic Year 1971-1972
Afghanistan	55	68	Lebanon	977	2128
Algeria	—	2	Liberia	—	1
Argentina	—	4	Libya	8	10
Australia	4	13	Maldives	—	4
Bahrain	36	64	Malta	—	1
Belgium	—	1	Mexico	1	8
Bolivia	2	6	Morocco	11	16
Brazil	2	7	Nepal	21	10
Bulgaria	—	3	Netherlands	—	2
Canada	—	4	Nigeria	2	1
Chile	—	1	Oman	4	6
China	—	2	Pakistan	80	118
Colombia	1	1	Palestine	77	143
Costa Rica	—	1	Philippines	3	2
Cyprus	40	68	Qatar	1	2
Denmark	—	2	Saudi Arabia	36	57
Dubai	—	2	Senegal	—	1
Egypt	22	39	Sierra Leone	1	2
Ethiopia	4	11	Somalia	—	2
Finland	1	1	South Africa	—	1
France	6	11	Sudan	17	28
Germany	1	9	Syria	140	277
Ghana	2	4	Thailand	1	1
Greece	8	19	Tunisia	—	1
India	7	11	Turkey	24	50
Iran	48	65	Uganda	—	1
Iraq	30	66	United Kingdom	15	60
Italy	—	2	United States	46	216
Jamaica	—	1	Venezuela	8	7
Jordan	264	448	Yemen (P.D.R.)	7	17
Kenya	2	—	Yemen (Y.A.R.)	8	4
Kuwait	33	62	Yugoslavia	—	1
			Undetermined	3	7
			TOTAL	2059	4183

STUDENTS BY NATIONALITIES**SPECIAL PROGRAMS 1971-1972**

	Summer Session 1971	Academic Year 1971-1972
Afghanistan	3	3
Bahrain	15	10
Dubai	—	3
Egypt	—	1
India	1	—
Iran	1	2
Italy	—	1
Jordan	3	27
Kuwait	13	8
Lebanon	12	54
Nepal	4	1
Oman	—	2
Palestine	7	7
Saudi Arabia	3	1
Sharja	1	3
Somalia	2	—
Syria	1	1
Turkey	1	1
United Kingdom	—	3
United States	—	2
Yemen (Y.A.R.)	—	5
Undetermined	—	1
Total	67	136



tion course (these must be taken during the Sophomore year), Arabic 201 or 221 or 222 (for Arabic-speaking students only) ;

(e) Cultural Studies 201, 202 (normally during the Sophomore year), 203, 204 (normally during the Junior year), and a minimum of 18 additional credits outside the major Department, exclusive of requirements in (c) above and of the normal Freshman program ;

(f) A grade of 70 or more in at least 50 credits numbered 200 or above ;

(g) Some Departments further require that their students sit for the Undergraduate Record Examination. Individual Departments can use a comprehensive test for their evaluation of the students. Information concerning departmental policy on this matter may be obtained from the Departments concerned.

2. Interdepartmental Majors and Teaching Majors

Besides the Departmental Major, which consists of a minimum of 30 credits of courses numbered 210 or above in one Department and other departmental requirements, students may also enroll for Interdepartmental Majors or Teaching Majors.

(a) An Interdepartmental Major consists of a minimum of 24 credits in courses numbered 200 and above in each of two Departments in related fields. An average of 70 is required for courses taken in each Department.

(b) A Teaching Major consists of a minimum of 30 credits in courses numbered 210 or above, in a Department offering a subject taught in elementary or secondary schools, plus the requirements of the Department of Education for the Teaching Diploma.

For further details concerning individual departmental requirements, please consult the relevant sections of this catalogue below.

3. The Teaching Diploma

An undergraduate student working for his Bachelor's degree, taking a major in Education or any major in a field taught in elementary or secondary schools may, with the approval of the Education Department, qualify for the Teaching Diploma if he completes the requirements for that major and attains an average of 70 or more in Education 211, 212, 215, 216, and six credits from a selection of Education courses 241-256.

The Teaching Diploma may also be given to students who already hold a Bachelor's degree from this University in any major in a field taught in elementary or secondary schools, provided they fulfill the Diploma requirements stated above. Holders of Bachelor's degrees from other universities in any major in a field taught in elementary or secondary schools, will have to take 30 credits at this University, including the courses required for the Teaching Diploma. The latter may be exempted from six credits of the sequence Education 241-256 on the basis of satisfactory teaching experience of at least two years, in which case students will take two advanced seminars instead of these six credits.

4. The Sophomore Diploma

This diploma was discontinued after October, 1967. Successful completion of the Sophomore class qualifies students for acceptance by American colleges and universities into the Junior class, and for admission to British universities represen-