INTER AMERICAN UNIVERSITY OF PUERTO RICO

General Catalog

2011-2013

Volume XXV August, 2011 Number I

Published by Inter American University of Puerto Rico, PO Box 363255, San Juan, Puerto Rico 00936-3255.

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A Publication of the Vice Presidency for Academic and Student Affairs
and Systemic Planning
August 2011

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HECTOR R. SÁNCHEZ FERNÁNDEZ, J.D., Director of the Information Access Center
ROSABELL PADÍN BATISTA, J.D., Director of the Legal Assistance Clinic

School of Optometry

ANDRÉS PAGÁN FIGUEROA, O.D., M.P.H., Dean
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IRIS CABELLO RIVAS, O.D., Dean of Student Affairs
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DAMARIS PAGÁN O.D. M.P.H., Director of Clinical Affairs
ÁNGEL ROMERO, O.D., Director of Academic Affairs
ILEANA VARGAS, Director of the Religious Life Office
ARLEEN CORREA, M.B.A., Executive Assistant to the Dean
MANUEL RODRÍGUEZ BIDOT, M.P.H., Executive Assistant to the Dean/Assessment Officer
WILMA MARRERO ORTIZ, M.L.S., Director of the Information Access Center
MARÍA JULIA AULET, M.S., Director of Development
JOSÉ COLÓN PAGÁN, B.A., Director of Admissions
LOURDES M. NIEVES PÉREZ, B.B.A., Director of Financial Aid
DAMARIS SÁNCHEZ, Administrative Affairs Officer
HÉCTOR SANTIAGO CHAMORRO, O.D., Ph. D., Research Director
JUAN L. GALARZA, O.D., Director of the Residency Program
DORIS ANTUNEZ O.D., Director of Continuing Education

Directory

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http://www.optonet.inter.edu

General Information

History of the University

Inter American University of Puerto Rico is a private institution with a Christian heritage and an ecumenical tradition. It is a non-profit organization that provides college instruction to persons of both sexes. It was originally founded in 1912 as the Polytechnic Institute of Puerto Rico by the Reverend J. William Harris and offered elementary and secondary education on the land occupied today by the San Germán Campus. The first college level courses were started in 1921 and in 1927, the first group of students graduated with Bachelor's Degrees. In 1944, the Institution was accredited by the Middle States Association of Colleges and Schools. It was the first four-year liberal arts college to be so accredited outside the continental limits of the United States. This accreditation has been maintained since then. The University is approved to provide educational services to veterans intending to pursue studies under the norms of the Veterans' Administration. The programs of the University are authorized by the Council on Higher Education of the Commonwealth of Puerto Rico and by the Commonwealth's Department of Education, which certifies teachers for the public school system of Puerto Rico. Inter American University's School of Law is accredited by the American Bar Association and the School of Optometry, inaugurated in 1981, by the Council on Optometric Education. In March 1982, the first doctoral program was initiated.

Inter American University is the largest private university in Puerto Rico. Enrollment, in recent years, has been maintained at approximately 43,000 students. At the present time, about 21 percent of all the Island's college students and 35 percent of the students who go to the Island's private colleges attend Inter American University.

Inter American University's tradition of public service, the geographical location of its instructional units and its continuing attention to student needs make it especially attractive and accessible to students from all the municipalities of Puerto Rico. The increasing availability of both Federal and Commonwealth funds for student financial aid has enabled many students, who otherwise would not have been able to do so, to get a college education.

Governance

The highest governing body of Inter American University is a self-perpetuating Board of Trustees, whose members are elected by the Board itself without any outside intervention or tutelage of any kind.

The President is the chief executive and academic officer of the Institution. The Managerial Systemic Council is composed of the President of the University, Vice-Presidents, Chancellors, the Deans of the Schools of Law and Optometry, an Executive Secretary appointed by the President, the Executive Director of the Information System, the Executive Director of the Office of the Juridical Advisor, the Executive Director of the Office of Evaluation and Systemic Research, the Executive Director of the Human Resources Office, the Executive Director of the Office of Promotion and Recruitment. In addition, when affairs relevant to their functions are being considered by the Council, the following persons will attend as advisors: the President of the University Council, and the Director of Planning and Systemic Development of Physical Plant.

Subject to the approval of the President of the University and of the Board of Trustees, the faculties of the School of Law and of the School of Optometry are responsible for their own academic programs and standards. Nevertheless, in all other respects, these professional schools are also subject to university-wide policies, norms and procedures.

The Academic Senates of the instructional units and the University Council, heirs of the Academic Senate created in 1966 and succeeded by the University Senate in 1973, are primarily concerned with the academic well being of the University through the process of academic articulation among the Campuses. The Academic Senates establish academic norms subject to the ratification of the University Council and the concurrence of the President. Both bodies formulate recommendations on affairs related to educational, administrative and research policy.

Vision

Inter American University of Puerto Rico is a top quality higher education institution in search of academic excellence, with emphasis on the formation of people with democratic and ethical values, framed in an ecumenical Christian context.

Institutional Mission

The main purpose of Inter American University of Puerto Rico is the development of talent in men and women, regardless of race, color, creed, sex, age, nationality, etc. This development occurs by means of a post-secondary education of wide and varied scopes, including, but not limited to liberal arts, graduate, professional and occupational career education, leading to the degrees, diplomas and certificates usually granted in institutions of post-secondary or higher education, recognized and accredited by public agencies.

In harmony with its main purpose, Inter American University of Puerto Rico has the mission to contribute to society through the formation of cultured citizens, conscious of their ethical, social and cultural obligation, and committed to democratic and Christian principles; to prepare occupationally and professionally trained human resources, with a civic and social sense of responsibility, that can exert effective leadership in the different fields of the human activity, and who are adaptable to diverse scenarios of activity, including foreign areas.

The education the University offers for these purposes, has to include the accumulated knowledge until the most recent manifestations, corresponding to the intellectual capacity of the type of student to which it is applied, as well as to this type of student's and society's needs. This requires the adoption of admission norms, study modalities, and levels of competencies that respond to the characteristics of the several groups that compose the student population.

Goals of the University

The University faculty and the administration strive to achieve the following institutional goals:

1. To provide and maintain a positive atmosphere in the university community that will foster intellectual, social, and moral development based on the fundamental values of Christianity.
2. To promote a liberal education that will lead to the development of an educated person, well-versed in the different fields of human knowledge through the development of critical thinking, moral and civic responsibility, skills in social integration, scientific and mathematical knowledge and a sensibility for the arts that enhance a full life.
3. To succeed in having the student become functionally proficient in the use of Spanish or English and in developing an acceptable level of competency in the other language.
4. To stimulate student understanding and appreciation of Puerto Rico's cultural heritage, its origins, development, contributions and relations with the Caribbean, the Americas and the rest of the world and the commitment to preserve it.
5. To offer a non-proselytizing cultural, ecumenical and moral religious education to increase student awareness of the place of religion in all civilizations and their understanding of its relationship to other disciplines.
6. To offer a variety of programs and services at the undergraduate, graduate, occupational and professional level in accordance with the changing necessities of the student population and of society in its global context.
7. To foster the ongoing growth and commitment of the faculty in the application of teaching methods, in the mastery of the subject matter and in their personal and professional development.
8. To foster the continuous development and improvement of the support personnel of the teaching process.
9. To succeed in having the support programs for the faculty and student services and activities work in harmony with the academic program so as to enhance the total education of the student.
10. To achieve constant progress, properly planned, in the field of new technology with relation to the academic program, educational strategy, and support for teaching, student services and administration.

11. To stimulate research and creativity in the entire academic community to enrich the Institution's educational endeavors, to increase human understanding of the environment and of the world and to generate new knowledge and technology.
12. To create an awareness of the social, cultural, economic, environmental, and political problems that confront Puerto Rican society and to stimulate the search for solutions to these problems by defining and discussing them.
13. To promote maximum coordination and cooperation with educational institutions, professional agencies and institutions in Puerto Rico and abroad that foster educational improvement at all levels.
14. To stimulate the members of the communities the Institution serves to recognize the value of continuing personal and professional development through a variety of University programs that will enrich their lives and increase their knowledge.
15. To assume a leadership role in promoting the cultural and social enrichment and the prosperity of the communities the Institution serves.
16. To develop an educational philosophy based on education for peace.

Religious Life Policy

Inter American University of Puerto Rico is an ecumenically oriented institution, but does not adhere to any one particular theology or ecclesiastical body. Founded by Dr. John William Harris, a minister of the Presbyterian Church, Inter American University maintains a historic, friendly and enriching association with that communion as well as with other Christian groups in accordance with its ecumenical spirit.

Inter American University of Puerto Rico is a community of higher education dedicated to a comprehensive search for truth within an environment of responsible freedom and through the encouragement of a mature academic life which guarantees true freedom of investigation. Within this context, religion is studied in the University as an academic discipline designed to engage in fruitful dialog with other university disciplines.

In affirming its commitment to the Christian ecumenical ideal, the University dedicates itself to the renewal and reaffirmation not only of its own Christian heritage, but also the culture within which it is situated and which it serves. This does not oblige the acceptance of all the details of our Christian past nor of all the elements of modern Christianity. Nevertheless, the University has fostered and will continue to foster the convergence of all Christians in the one faith centered about the person of Jesus Christ as He is made known to us in the apostolic tradition of the Scriptures as the One whom Christians regard as decisive, definite and normative in man's relations with God and his fellow men and society. The University affirms its conviction that to be a Christian today implies, on the one hand, knowledge of and obedience to the Gospel and, on the other, identification with the Universal church by means of an individual commitment to a particular Christian communion.

The ecumenical posture of the University involves openness to society, science, technology and a plurality of faiths; it involves an integral education of each individual so he or she may exercise a vocation within his or her community in a responsible and productive way; it involves a commitment to serve though not to dominate society; and it involves the development of friendliness, fellowship and understanding to bridge human barriers.

The University promotes the following Christian-ecumenical values:

WE BELIEVE IN GOD AS A SUPREME BEING

God is the Supreme Being who created all that exists. His power and presence are revealed in the person of his Son Jesus, the Savior, and in the Holy Spirit, that guides the community of faith.

WE BELIEVE IN JESUS

We accept that the apostolic tradition of the Scriptures recognizes and accepts Jesus as decisive, definite and normative for humans' relations with God, their fellow men, family and society. Since He is the Savior and Mediator of Humanity, it is our commitment to continue fostering the convergence of all Christians through the one faith around the person of Jesus.

WE BELIEVE IN LIFE
We affirm that life is a gift of God. We foment that all human beings value their life so they may be able to give their best to the country, family and society. We promote the preservation of life, and therefore promote a Christian consciousness in education.

WE BELIEVE IN THE FAMILY
We believe that the family is the essential social nucleus where the initial values that shape the person are developed. We commit ourselves to reinforce these values, from their Biblical foundation, that help each human being to achieve the complete life and make it extensive to others.

WE BELIEVE IN SERVICE
We affirm our ecumenical Christian ideal and devote our efforts to renew and reaffirm service to our country, society, family and fellow men.

WE BELIEVE IN THE IDENTITY OF THE CHRISTIAN COMMUNITY OF FAITH
We affirm that the conviction of being Christian implies knowledge of and obedience to the Word of God and, also, identification and commitment to the Church and to the person's particular Christian community.

WE BELIEVE IN INTEGRAL EDUCATION
Our Christian ecumenical position provides openness to society, science and technology, with an integral mentality, an attitude of respect and a moral conduct in harmony with our values.

We foment the integral education of each person for carrying out his vocation in a responsible way and with a moral conduct and a productive performance in his community.

We are a community of higher education in an integral search of the truth, within an environment of freedom, through the encouragement of a mature academic life that guarantees the true freedom of investigation.

WE BELIEVE IN THE COMMITMENT WITH OUR FELLOW MEN
We believe that to be Christian it is to have and show a commitment of service to others based on love and not on the dominion of society, but rather on promoting friendship, solidarity, tolerance and understanding to bridge human barrier.

WE BELIEVE IN THE STUDY OF THE CHRISTIAN RELIGION
We promote the study of the Christian religion as an academic discipline in which a fruitful dialog with the other academic disciplines is maintained.

We will continue to strengthen the development of the religion studies program by providing all students the opportunity to acquire an understanding of the Christian faith and its implications for our culture.

To achieve this, Inter American University of Puerto Rico will continue and strengthen the development of its programs of religious studies and will provide to all its students an opportunity to understand the Christian faith and its implications for our culture; the University will furnish information about the most important aspects of the world's major religions to its students and will encourage them to appreciate these religions within their historic, theological and philosophic context. In this way, the search for faith and for the means to humanize mankind may be seen as a relevant option in a world striving for greater understanding and happiness.

The commitment of Inter American University to its Christian Heritage, as well as to its academic mission, will manifest itself through the development of an ecumenical program of religious life.

In accordance with this basic religious philosophy for the academic study of religion and for the development of religious activities, Inter American University, by its act and works, will:

1. Encourage the expression of the Christian principles here set forth,
2. Require the academic study of fundamentals of the Christian faith,
3. Require each instructional unit to establish an Office of Religious Life, which will serve the entire University community.

Accreditations

The eleven academic units of Inter American University of Puerto Rico are authorized by the Council on Higher Education of Puerto Rico and accredited by the Middle States Commission on Higher Education to offer university studies of the undergraduate, graduate and professional levels, as the case may be. Likewise, the University is committed to the professional accreditation of its academic programs. For this reason, some academic units have programs accredited by the following organizations:

- Accreditation Board for Engineering and Technology
- American Bar Association
- Council on Accreditation of Nurse Anesthesia Educational Program
- Council on Optometric Education
- Council on Social Work Education
- International Association for Continuing Education and Training
- Joint Review Committee on Education in Radiologic Technology
- National Accrediting Agency for Clinical Laboratory Sciences
- National League for Nursing Accrediting Commission

Associations

Inter American University is member of the following professional organizations:
American Council on Education (ACE)
American Institute of Certified Public Accountants (AICPA)
Asociación de Colegios y Universidades Privadas de Puerto Rico (ACUP)
Asociación de Industriales de Puerto Rico
Association of American Colleges and Universities (AACU)
Association of Governing Boards of Universities and Colleges (AGB)
Association of Presbyterian College and Universities (APCU)
Broadcast Music, Inc.(BMI)
College Board
Council of Graduate Schools (CGS)
Hispanic Association of Colleges and Universities (HACU)
Hispanic Educational Telecommunications System(HETS)
National Association of College and University Attorneys (NACUA)
National Association of Independent Colleges and Universities (NAICU)
National Association of Student Financial Aid Administrators (NASFAA)
Organización Universitaria Interamericana (OUI)

Servicemembers Opportunity College (SOC)

The University participates in the network of colleges and universities in the United States and abroad known as Servicemembers Opportunity College (SOC). Member institutions are open to men and women on active duty in

any of the military services and to their dependents. Information regarding the SOC program at Inter American University may be obtained from the Registrar Office.

Reserve Officers Training Corps (ROTC)

Since January 1975, Inter American University has had formal arrangements with the University of Puerto Rico whereby male and female students of Inter American University may register in the University of Puerto Rico's program for the training of Reserve Officers. Arrangements for participation in this Program should be made with the Department of Military Science or Department of Aerospace Studies at the University of Puerto Rico in Río Piedras or Mayagüez. All ROTC credits taken by Inter American University students under this agreement will be included on their transcripts together with their corresponding grades. These grades will be counted in the grade point index.

Inter American University will accept as elective credits for undergraduate degrees a maximum of twelve credits received in ROTC courses at the 3000 or 4000 levels. This norm is applicable to credits received from the University of Puerto Rico under the aforementioned agreement or before its effective date and to credits received from another institution. Any credits not received under the agreement will be considered as transfer credits.

Services for Veterans

All programs of the University are authorized by both the Veterans' Administration and the Department of Education of the Commonwealth of Puerto Rico. Veterans intending to enroll and receive VA educational benefits should submit an application through the Office of the Registrar of the campus in which they intend to pursue studies.

The beneficiaries of educational services for veterans, including eligible family relatives, have the right to enjoy these benefits only for the period of time required for completing their academic degree as established in this Catalog and by applicable legislation and regulations.

Study time required for completing an academic program depends on the number of credits required for the program, the nature of the courses and the number of credits the student takes each term. An estimate of the period of time required may be obtained by dividing the total number of credits required for the program by 15, which is the average number of credits taken by a full-time regular student.

Students accumulate semesters of study as indicated below:

Term	Student Classification	Terms of Study (in percent)
Semester	Full-time	100.0
	Part-time	50.0
Trimester	Full-time	66.7
	Part-time	33.3
Bimester	Full-time	50.0
	Part-time	25.0

Students also accumulate study time at the rate of one (1) semester for every twelve (12) transferred credits.

Academic-Administrative Calendars

The calendars for the academic terms are available on the website of each of the campuses and professional schools.

Instructional Units

Inter American University offers academic programs in the following eleven instructional units: The Aguadilla, Arecibo, Barranquitas, Bayamón, Fajardo, Guayama, Metropolitan, Ponce and San Germán Campuses; and in two professional schools: Law and Optometry.

Academic Degrees

Inter American University offers pre-university, undergraduate, graduate and professional academic programs for obtaining certificates and Associate, Bachelors, Masters and Doctoral degrees in subject matters normally offered by institutions of higher education of a nature, educational mission and goals similar to those of this University. The School of Law of Inter American University grants the Juris Doctor degree and the School of Optometry, the Doctor of Optometry degree.

Some of the University's instructional units offer special programs, which are usually funded by federal grants. The educational activities of the Institution also include courses, seminars and institutes carried out as part of the University's Continuing Education Program.

Publications

Inter American University has a variety of publications to facilitate communication within the University community, with alumni and with other academics and academic communities.

Interamericana is the official publication of Inter American University. It is published four times a year and its approximately 30,000 copies are distributed to students, faculty, administration, alumni and friends of the Institution. This publication covers activities from all instructional units and features special interviews and current events affecting education or the development of the Institution as well as general information regarding the faculty and administration.

Videoenlace Interactivo is a publication of the Vice-Presidency for Academic and Student Affairs and Systemic Planning. Its objective is to share the experiences of professors and students in the field of distance learning. It serves as forum for dialog and the exchange of ideas in the use of technology in the educational process.

The *Law Review*, edited by students, is the official publication of the School of Law. Its articles are written by professors and students from the School of Law, judges and practicing lawyers. Because of the careful selection of its articles, the Law Review of Inter American University's School of Law is highly esteemed in the field of law.

Homines is published by the Metropolitan Campus. It contains critical analyses of current thoughts and events relevant to national and international affairs in the vast field of the social sciences. It is published twice a year.

Prisma is published annually by the Arecibo Campus. It has an interdisciplinary focus for the purpose of fomenting research and literary creativity in the University community. Essays, critiques, poems and short stories are published.

Surisla is published annually by the Ponce Campus. It transmits the literary works of the University community as well as the extramural contributions through an interdisciplinary focus.

Continuing Education Program

Inter American University established the Continuing Education Program to promote efforts to develop a will for continuous learning. The University has always maintained its commitment to facilitate ample educational opportunities to fulfill its philosophy of providing learning experience oriented towards the continuous acquisition of knowledge.

The Program facilitates the update of knowledge, the development of skills or their refinement for those persons who return to the University with the purpose of improving their education in order to continue participating and contributing in a highly competitive world. The Program provides learning experiences through up-to-date, pertinent, dynamic and innovative academic offerings. This Program is directed to those persons who need, desire

or are required to learn, develop, update or refine their skills and acquire knowledge for their personal or professional improvement.

The Program strives to achieve the following objectives:

1. To provide an academic offering that responds to the interests and needs of the community and groups the Program serves.
2. To promote and foster continuing education through the dissemination of the purpose and content of the Program.
3. To offer excellent services geared to attain the maximum satisfaction of the participants.
4. To promote and maintain collaborative projects with local and international entities in order to satisfy their market demands.
5. To support University efforts in the promotion of cultural enrichment and social well being as in means to improve the quality of life.

Academic Offerings of the Continuing Education Program

The Continuing Education Program will make available to the academic and non-academic university community a variety of courses, seminars, trainings and workshops in which a variety of specialized themes will be presented. In addition, it will promote an ample offering of pertinent current educational experiences as well as non-traditional experiences to attend to the changing needs of private business and government agencies. By means of innovative and multidisciplinary activities, faculty members will stimulate students to participate in experiences that make the learning process more participatory and dynamic, until they obtain control over the curricular content they are learning. At the same time, students will be motivated to learn from their classmates' experiences in an environment of mutual and productive collaboration. Through its scheduling, the Program will give efficient attention to those persons interested in or required to acquire new knowledge or update that which they already possess. It will also serve the needs of those persons whose profession requires that they take continuing education units and those who have the will and the interest to continue learning and acquiring knowledge for their own satisfaction.

Program personnel will collaborate with the academic departments in the preparation and implementation of proposals that aim to offer continuing education courses with University credit. This may be for special students or to satisfy the demands or particular needs of some professional organization, private enterprise or government agency. The academic units offered with University credits as part of the Continuing Education Program, must meet the established University norms and rules and laws that govern Higher Education in Puerto Rico. The administrative aspects inherent to the development of this special offering with academic credits (planning, programming, faculty contracts, approvals from accrediting agencies, among others), will be the responsibility of the corresponding academic department.

Development of Educational Offerings in Continuing Education

The Program will offer other educational activities to satisfy particular needs that may arise in service areas of the campuses, such as: summer camps, reviews in preparation for standardized tests, special projects, symposiums, conferences and others.

Development of Educational Activities

1. Different educational activities will be available in special schedules in and outside of institutional facilities. Each one of these will be specifically designed to satisfy the needs and interests of diverse populations that will share their time between study and other personal, occupational, or professional enrichment activities.
2. These educational activities will take place in physical facilities prepared with appropriate resources for learning and in which faculty members will be able to develop their classes in an efficient manner. The

Chief Executive Officer of the campus will be responsible for providing the required conditions for the fulfillment of this norm.

3. The different academic units will utilize technological advancements to make their academic offerings or special activities available to different populations both in and outside of Puerto Rico.
4. The Program will maintain a faculty with the required academic preparation, vast experience, ample knowledge and up-to-date professional knowledge in the different curricula in order to facilitate the acquisition of practical and pertinent knowledge in accordance with the demands of a highly technological and competitive world.
5. The Central Office, as well as the academic units, will provide activities for the continuous enrichment and professional development of the faculty and other program personnel in curricular and pedagogical matters. Program faculty may participate in the developmental learning experiences planned for the regular faculty of academic unit.
6. The Chief Executive Officers may consult and request advice from the Vice Presidency for Academic and Student Affairs and Systemic Planning with regard to the academic development of the Program or in any other related matter.

Alumni Association

The Alumni Association Poly-Inter is an organization of graduates and former students who attended Inter American University or Polytechnic Institute. The Association keeps its members informed of University activities and involves them in its development. The Association is governed by a Board of Directors composed of 29 members, nine of which correspond to the alumni chapters of the different campuses and two members to the professional schools. In addition, the Association is represented on the Board of Trustees of the University by an Alumni Trustee. Each year the Alumni Association holds two primary activities: the celebration of Founders Day and the honoring of distinguished alumni.

Admission to the University

Admission to Inter American University is granted to a specific campus during a specific time at any registration period within the academic year for which admission is to be granted. Admission is valid during the academic term for which it was granted. The validity of the admission may be extended, at the request of the student, for an additional period not greater than one academic semester or its equivalent.

Admission to the University does not imply admission to a specific academic program.

Applicants interested in studies totally through distance learning should consult the section "Admission Requirements to Distance Learning Programs" in this Catalog.

Admission to Graduate and Professional Programs

The requirements and procedures for admission to the Master's and Doctoral Programs are presented in the Graduate Catalog and in the School of Law and School of Optometry catalogs.

Provisional Admission

In cases where students have difficulty in obtaining their graduation certification or other documents required by the Institution, they may be considered for provisional admission if they meet the admission requirements.

Students may be admitted by granting them a term of up to 30 days to submit the corresponding documentation. The chief executive officer of the campus may extend this period for just cause. If the students do not comply with the requirements by the conclusion of the extension, they will be dropped from the University.

Provisional Admission of Transfer Students

When students cannot provide some of official documents required by the University to complete the admission by transfer process, they will be admitted provisionally, if they provide a copy with these documents.

Student admitted provisionally will have thirty (30) calendar days from the date of admission to submit the required documents. The chief executive officer of the unit may extend that period for just cause. Students that do not comply with this requirement by the end of the extension will be dropped.

Requirements for Undergraduate Admission

Applicants to any campus of Inter American University of Puerto Rico at the undergraduate level must:

1. Present evidence of graduation from an accredited secondary school or its equivalent with a minimum grade point index of 2.00 or its equivalent.
2. Present satisfactory scores in the Aptitude and English Achievement Tests of the College Board. Students whose first language is English may take the Scholastic Aptitude Test while those whose first language is Spanish may take the Prueba de Aptitud Académica.

    a. For more information on the Spanish version of the test (Prueba de Aptitud Académica), please write to:
        College Board
        Puerto Rico and Latin America Office
        PO Box 71101
        San Juan, Puerto Rico 00936-8001
    b. For more information on the English version of the test (Scholastic Aptitude Test), write or call the Admissions Office of any of the Campuses for the Educational Testing Service address and phone number.

3. Obtain a minimum admission index of 800. This is calculated by using the test results and the high school grade point index.

Undergraduate Admission Procedures

Applicants for admission to any campus of Inter American University of Puerto Rico must:

1. Obtain an application for admission from the Admissions Office of the Campus of their choice or from high school advisors or other authorized personnel. Application forms are also available through Internet.

2. Submit the completed application to the Admissions Office of the chosen Campus, preferably by May 1, to apply for the fall semester, by November 15 to apply for the spring semester and by April 15 to apply for the summer session.

Students in their fourth year of high school are advised to submit the application as soon as they decide to study at this University. By applying before May, they will be able to receive greater orientation about the University and its financial aid programs.

For admission to the Trimester Program in English, application materials should be submitted to the Admissions Office at the Metropolitan Campus or to the Director of the Trimester Program in English.

All application documents for admission to the Trimester Program in English must be submitted no later than:

July 1 for	Trimester I	(August)
October 1 for	Trimester II	(November)
January 1 for	Trimester III	(February)

Applications from military personnel whose duty assignments prevent them from filing on time will be accepted after these dates.

3. Arrange for a transcript of the high school record to be sent by an authorized representative of the secondary school to the appropriate Admissions Office.
4. Arrange for the CEO test results to be sent to the appropriate Admissions Office.
5. Submit an updated certificate of vaccination if the student is less than 21 years old, except students interested in taking courses in other countries through distance learning.
6. Send a $25 deposit if planning to board at the San Germán Campus. This deposit will be applied toward the room fee. It will be refunded if the student is not admitted to a residence hall or if the student requests its return before August 1. (See section on Residence Halls).

Final decisions regarding applications will normally reach the applicant no later than three weeks after all application materials have been received by the University. If for any reason the University requires more time, the applicant will be notified. A personal interview of an applicant for admission may be required.

Early Admission to University Studies

The Early Admissions Program offers high school juniors the opportunity to apply for admission to undergraduate studies. These students will be selected on the basis of their achievements. The minimum requirements are an admission's index of 1,175 based on the average of the achievement test of the College Board and the student's high school grade point average, a 3.00 high school grade point average, an average of 575 on the achievement tests of the College Board. Evidence is also required of having passed two years of high school English, two years of Spanish, two years of a combination of science and mathematics, and written recommendations by high school principals and counselors describing student maturity and ability to perform intellectual tasks required of university students. These students are not eligible to receive financial aid from Title IV. These students may return to high school studies without prejudice to their future chances in higher education if they find they are unable to cope with the university curriculum. It is the responsibility of the student to take the necessary steps in the Puerto Rico Department of Education to receive high school graduation certification.

Admission of New Students to AVANCE

Students, who do not own university experience and request admission to the program, must comply with the following requirements:

1. Be at least 21 years old or be legally independent, as demonstrated by means of an official and valid document (copy of the Birth Certificate, copy of the Liberation Document, copy of Marriage Certificate or copy of a document issued by some pertinent agency).
2. Present evidence of graduation from an accredited high school or equivalent.

The chancellors shall use administrative procedures and strategies that assure that the institutional commitment to offer students the necessary services while attending the University, are met. The adequacy, effectiveness and efficiency in offering these services contribute to improve learning, a higher retention rate and a good image in the community.

Homeschooling

A. Students of homeschooling may apply for admission to the University in two ways:

1. Present evidence of having completed a study program equivalent to high school graduation in Puerto Rico. This equivalency must be certified by the Department of Education of Puerto Rico.

2. If certification is not available from the Department of Education of Puerto Rico, a parent or tutor of the student will present:

    a. A sworn statement declaring that the student culminated his studies by homeschooling.
    b. The results of the College Board test. The student is required to have obtained a minimum average of 500 points in the achievement tests in English, Spanish and mathematics.

B. The applicant must obtain a minimum admission index of 800. This is computed from the results of the College Board examinations and an equivalence of the high school index calculated by the University.

C. If the University deems necessary, the student must attend an interview.

University Credits through Advanced Placement Testing

Entering students may obtain university credits upon fulfilling the following:

1. Have obtained 3 or more points on a 5 point scale on the College Board Advanced Placement Test. Six university credits will be given for each test.
2. Have obtained scores recommended by the American Council on Education on College Examination Program tests.
3. Have taken in British areas the General Certificate of Education (GCE) Advanced Level Examination and have obtained a grade of "Pass".

Admission of Transfer Students

All candidates for admission by transfer from another university or college must submit an application for this purpose. Students must request that the office of the registrar of the university or college of origin send a copy of their official transcript to the appropriate Admissions Office of Inter American University.

Students will be considered candidate for admission by transfer, if they:

1. Passed in another accredited institution at least 12 credits with a grade of C or better, except in academic programs that establish different requirements, in which case they must meet these requirements.
2. Meet the academic progress and the disciplinary norms of this University.
3. Submit an updated vaccination certificate if they are under 21 years of age.

The admissions requirements for transfer students interested in studying through the Services Program for Adult Students are included in that section in this Catalog.

Students who have passed fewer than twelve transferable semester credits at another postsecondary institution may request admission by following the procedures indicated in the section "Requirements for Undergraduate Admission" in this Catalog. Upon admission, such students will receive credit for transferable academic work completed at another postsecondary institution.

Before matriculation, a student may make a written appeal to any decision made regarding transfer credits. Such an appeal is to be submitted to the Office of Admissions. Once a student has been enrolled, no further consideration of previous credits from other institutions will be given.

Students who have been required to withdraw for academic reasons from another university are not eligible for one academic term after withdrawal. Nevertheless, they are eligible for immediate admission if they choose a major different from the one they were required to withdraw from.

Transfer credits may be allowed only for existing programs in the University, but credits may apply as electives provided that the courses are within the general fields of existing departments of Inter American University. No grade below C is acceptable for transfer. If the other institution uses a different grading system, the acceptance of the course will depend on that institution's official clarification of its grading system. Inter American University will determine the corresponding equivalencies. The number of credit hours awarded for courses accepted for transfer will be the credit-hour value of the course at the institution of origin, so long as this value does not exceed the credit-hour value for the course at Inter American University. Generally, students obtaining scores of 3 or above on the College Board Advanced Placement Tests will receive university level credit.

Students from British areas who receive a "Pass" or above in the GCE Advanced ("A") Level Examinations may receive credit toward advanced standing.

All acceptable courses completed at Inter American University or elsewhere by students not regularly admitted to the University or in the Early Admission Program will be credited as soon as they have been admitted as regular students. Once students have been enrolled, no further consideration of previous credits from other institutions will be given, except for courses in progress.

If students take a course that is in their academic record as a transferred course and receive a grade or an administrative action symbol indicating an attempted course, the transferred course will be eliminated from the transcript.

Provisions Applicable to All Types of Transfers

Students, who have not taken English courses, must submit the results of the College Board for placement in the appropriate levels of English.

Admission of Transfer Students to AVANCE

Students who have studied in another accredited institution and desire admission to this Program must:

1. Be 21 years of age or more or be legally independent at the time they request transfer. This must be demonstrated by an official and valid document (copy of the Birth Certificate, copy of the Liberation Document, copy of Marriage Certificate or copy of a document issued by some pertinent agency).
2. Comply with the minimum academic index established in the Satisfactory Academic Progress Norms of this University. For this, all courses taken at the other institution will be considered. Students whose general grade index is less than 2.00 must also receive orientation from an adviser designated at the unit.
3. Present a letter of recommendation from the Dean of Studies of the other institution.

Students from the other institution who have been suspended for disciplinary reasons may be admitted on probation for a period not less than six months or greater than one year. This admission may be granted after the case has been evaluated and the admission recommended by an adviser designated at the unit. After the probationary period the case will be submitted again to the adviser for a definite decision, following an evaluation.

All transferred students desiring to complete a second academic degree must comply with the section Graduation Requirements and Information of the current Catalog for the degree they seek.

Admission to Special Programs

Students in special programs may be admitted following the norms established by the President of the University.

Admission of Audit Students

Students wishing to enroll in courses for audit must do so during the official registration period of the academic term or during the official period for changing courses. Such students must pay the course fee for auditing. Students who have not applied for admission should do so before registering as audit students.

Admission of Foreign Students

Foreign students interested in entering the University must submit their questions directly to the academic unit to which they wish to be admitted. Inter American University reserves the right to interview the applicants as part of the admission requirements. If the applicants are approved for admission, the Admissions Office will fill out the 1-20 Form from the Immigration and Naturalization Service of the United States of America, so they may obtain student visas. Students admitted to study totally through distance learning do not have to complete this form.

Admission to undergraduate programs leading to the Bachelor's Degree requires that the applicant has completed the secondary studies equivalent to the high school graduation requirements in Puerto Rico. Applicants with university studies must present evidence of such studies.

The official evidence of studies must be submitted in English or Spanish, properly authenticated by the appropriate authorities of the country of origin.

Admission of Special Students

Special students are: (1) students in good standing at another institution of higher learning who, with due authorization of their home institution, wish to study at Inter American University to fulfill requirements of their home institution, (2) people who, for their professional improvement or personal fulfillment, want to take courses but are not interested in obtaining a degree, or (3) teachers from the Department of Education who want to take courses to satisfy requirements of that department. Students from other institutions of higher education should present an official certification from their home institution indicating the courses for which they will receive credit at their own institution. Teachers admitted as special students should present a letter from their Superintendent of Schools certifying that they are teachers with university degrees. Special students do not have to submit transcripts of credits to be admitted.

All applicants interested in taking courses but not in receiving a degree or certificate from this University may be admitted upon meeting admission requirement number one and steps one to five of the Undergraduate Admission Procedures. Any applicant who later decides to continue studies toward a university degree or certificate must meet all requirements and all steps in the University's admission procedures. These students are not eligible to receive financial aid under Title IV.

All non-traditional study modalities will be available for students admitted under these criteria.

Readmission to the University

Students who discontinue studies for two semesters or more, four trimesters or more or eight bimnesters or more must request readmission at the Office of the Registrar of the campus to which they seek admission. The application may be submitted through traditional means or through electronic media (Web, fax, email, or other available media) The Office of the Registrar, after analyzing the official documents, will determine the students' eligibility for readmission, using the norms of admission established by Inter American University of Puerto Rico and the program

of studies the student is interested in. All requests should be made at least one month before the following enrollment period. The Dean of Studies will consider exceptions individually.

Students who have passed courses at another institution of higher learning should present an official transcript of the credits taken. This evidence will be submitted to the Admissions Office for evaluation.

Students readmitted will follow the General Catalog and the rules and regulations in effect at the time of their readmission.

Students interested in readmission to the University through the Services Program for Adult Students must comply with the requirements established in that section of this Catalog.

Honors Program

Philosophy and Objectives

The Honors Program of Inter American University is designed to achieve the maximum development of undergraduate academically talented students. The Program aims to attract students looking for an academic program that challenges and guides them by means of an interdisciplinary and critical thinking approach.

In this Program the University will make efforts to achieve that students assume greater responsibility for their learning through research and independent work. The faculty of the Program will plan learning experiences that enhance the development of the student as an educated person through an interdisciplinary approach that emphasizes critical analysis

The objectives of the Program are:

- To identify talented students whose abilities, needs, interests and motivation require an attention different from that of regular program students.
- To award the Honors program scholarship as a scholarship based on academic merit in which participation in student development activities is considered. In addition, this scholarship will be awarded as a recruitment scholarship for freshman students.
- To provide talented students interdisciplinary academic experiences of the highest quality that challenge their performance and allow them to work as independent learners by strengthening their research and critical judgment skills.
- To establish and foment an academic environment which will stimulate talented students in their academic and leadership aspirations and promote in them dignity, self-esteem and a sense of their potential as human beings.

Admission and Readmission

1. July 1 or the next work day for regular registration has been established as the deadline for applying for admission to the Program for the academic year, in academic terms beginning in August. Admission to the program is once per year. However, students may be admitted in January, with the authorization of the chief executive, if there are spaces available.
2. First year students will be considered for admission if they have a general high school index of at least 3.50 and an admission index of at least 1,250. Freshman students coming from high school will be awarded the scholarship automatically. Students qualifying for the Honors Program will receive the admission letter and their qualification for the scholarship together with their letter of admission to the University. This letter of admission to the Program and their qualification for the scholarship will be signed by the chancellor of the campus to which the student was admitted. The award of the scholarship will be subject to the availability of campus funds.
3. Second and third year students with between 25 and 72 university credits will be considered for admission if they have a general academic index of at least 3.50, in a regular academic load, in the previous academic term. Students that interrupt their studies in the Honors program may be considered for readmission if they meet the Program's admission requirements.
4. Transfer students from other institutions that have at least 14 credits in this University may apply for admission to the Program. Their academic index at their previous institution will be used as an additional element for consideration. The norm in effect related to Graduation with Honors (current General Catalog, Graduation with Honors) will also be taken into account.
5. Candidates from the AVANCE Program that have at least 14 credits in this University may apply for admission to the Program. They must comply with all the documents mentioned in the admissions requirements section.
6. All candidates for admission or readmission must present to the Program coordinator or director the required documents listed below. The coordinator or director will evaluate the application and, if necessary, require an interview with the candidate.

a. Application form
b. One (1) letter of recommendation from a teacher or professor
c. Answers to guide questions
d. A document proving their participation in co-curricular and student development activities such as: student organizations, leadership activities, internships, exchanges, and academic, cultural, sports, religious, and community service activities, among others.
e. A certificate of commitment

Retention

To continue classification as an Honors Program student, students must meet the following requirements:

1. Maintain an overall grade point index of at least 3.50.
2. Carry an academic load of at least 12 credits.
3. Pass Honors Program courses with a grade not less than B.
4. Take a minimum of six (6) credits per year in Honors Program courses, unless these have not been offered.
5. Complete the Evaluation of Participation by Term form. Together with this form they must present documentation showing their participation in co-curricular and student development activities in the interview for renewal of the scholarship.
6. Consult with the coordinator/director and obtain approval before dropping an Honors Program course. Students that drop Program courses or other courses will be evaluated by the coordinator and the professional advisor to determine if they can continue in the Program.

   Cases presenting special circumstances will be evaluated by the coordinator/director of the Program and, if necessary, by the Program Advisory Committee. The final recommendation will be presented in writing to the dean of studies for approval. Authorization to continue in the Program as an exception does not necessarily include the student's eligibility to receive a scholarship.

Academic Privileges

Honors Program students will:

1. Be given an institutional scholarship for tuition payment, according to the scholarship they are eligible for.
2. Receive a 15% discount in registration costs in continuing education courses while they are active in the Program and up to one year after having graduated with a Bachelor's Degree.
3. Have available special studies such as: individual research, portfolios, seminars, special topics, cooperative education, experimental courses and special projects.
4. Receive an indication on their official transcript that they belonged to the Program
5. Be given preferred treatment in the registration process.
6. Be given a special identification as Honors Program students
7. Receive recognition at graduation, or achievement night and at other activities in which academic performance is honored.
8. Be identified on their transcripts as having approved at least 12 credits in Honors Program courses with a grade of B or better.
9. Receive the same benefits as graduate students in regard to their use of the Information Access Center.
10. Receive invitations to special academic activities on campus, and when possible, to University activities.
11. Be encouraged by the academic units and the Vice Presidency for Academic and Student Affairs and Systemic Planning to participate in study trips, internships and in academic development activities.

Curriculum

1. The Honors Program offers students the following curricular alternatives:

    a. To take the General Education, major, specialization and elective courses that are offered under this Program.
    b. To take the entire major or specialization courses under this Program if their department offers them.
    c. To take courses designed for the Honors Program as well as seminars that offer cultural, leadership and interdisciplinary academic experiences that enrich their curriculum as well as their integral development.

2. Courses of the Honors Program will be offered in separate sections and are designed so that students may develop their potential to the maximum through experiments, real life situations, essays, creative projects, monographs and reports. These courses will promote individual research with an interdisciplinary focus, critical analysis and learning through co-curricular and student development experiences.
3. Students planning to begin a master's degree who have completed more than 90 credits at the bachelor's level may take graduate courses if they meet the requirements of the program they are applying for. However, these courses will not be covered by the Program scholarship.
4. Students must take a minimum of six credits per year in Honors Program courses, if the courses are offered.
5. All Honors Program courses approved by students will be counted towards their degree and students will not be required to take additional courses beyond those required by the course of studies. For this purpose, a validation or substitution process will be used.
6. Courses with a grade lower than B will not be considered for the purpose of certifying the approval of 12 credits in Program courses in the academic record.
7. Experimental course may be created for the Honors Program.
8. Other students not belonging to the Honors Program may register in course sections reserved for the Program if they meet course requirements and have prior authorization of the coordinator/director of the Program or of the dean of studies.
9. The Vice Presidency for Academic, and Student Affairs and Systemic Planning will coordinate the preparation of guides, workshops and model syllabi for General Education Program courses for the Honors Program.
10. The Program Advisory Committee will promote the participation of students in diverse co-curricular student activities: academic, sport, cultural, religious, student council and student organizations.

Additional information on the Honors Program may be obtained from the director or coordinator of the Program or from the dean of studies of each academic unit.

Scholarships

Admission to the Honors Program carries with it the award of an honor scholarship in harmony with the following criteria:

1. Freshman students:

    Level I **Basic Scholarship:** for elegible candidates who have an admissions index of 1,250 to 1,339.
    Level II **Superior Scholarship:** for elegible candidates who have an admissions index of 1,340 to 1,384.
    Level III **Extraordinary Scholarship**: for elegible candidates who have an admissions index of 1,385 to 1,600.

2. Sophomore and Junior students:

    Level I **Basic Scholarship**: for elegible candidates who have a general grade point index of 3.50 to 3.79.

Level II **Superior Scholarship**: for elegible candidates who have a general grade point index of 3.80 to 3.90.

Level III **Extraordinary Scholarship**: for elegible candidates who have a general grade point index of 3.91 to 4.00.

3. The amount of the honor scholarship in each category is as follows:

Level I **Basic Scholarship**: tuition payment for one Honors Program course, in the academic terms indicated.

Level II **Superior Scholarship**: tuition payment for one Honors Program course and the paynment of one half of the tuition of all other courses, per term, except the registration fees established in the General Catalog.

Level III **Extraordinary Scholarship**: total tuition payment, except the established fees. Students should take at least one Honors course.

The Extraordinary Scholarship will cover the regular academic load for each term, from August to May, established in the General Catalog.

To retain eligibility for the scholarship, students must maintain the grade index established for the scholarship category they are in.

The evaluation for the eligibility of each student to continue or change the scholarship category will be conducted at the end of each part of the academic year by the coordinator/director of the Program. This person will inform the registrar, before the beginning of classes, the changes in the student's classification. The academic year is divided into parts: the first includes the terms that end between August and December; the second includes the terms that end from January to May.

Students must complete their course of studies within a period of time that does not exceed 150% of the normal duration established for the program they are studying.

Services Program for Adult Students (AVANCE)

Adult Student Services

The adult population presents characteristics, needs and interests different from the regular traditional population. The campuses will provide the professional counseling services and the academic advisement that responds best to the realities of this population. Newly admitted students will have interviewing services available as well as orientation by a professional counselor or by the person in charge of the AVANCE Program, in order to identify their needs and priorities and to refer them to the programs and services that will facilitate their integration to university life. Following are the norms that will be observed in the administration of these services.

1. Orientation
   Orientation is the link between the promotion and admissions processes, curricular development and the academic offerings and is therefore an essential component of the Program. The campuses will offer the professional counseling services to the adults, at their most convenient daily and hourly schedules.

2. Academic Advisement
   The campuses will offer the services of academic advisement to the adults, through available means and at their most convenient daily and hourly schedules.

3. Schedule of Services
   In order to take care of their needs properly, an effective strategic planning is required in all campuses with regard to personnel use. In this way, services of optimal quality in teaching and academic management will be guaranteed, as well as in the offices of the Registrar, Bursar, Financial Aid, Orientation, Admissions and others.

4. Academic Calendars
   Courses may be taken in the calendars established by the campuses for the regular terms, the summer sessions and the special sessions of October and March.
   Students, who have registered in the terms beginning in August or January, may complete or increase their academic load by adding courses in other sessions or terms, even though they may be studying simultaneously in two academic sessions, provided they do not exceed the amount of credits approved by their academic adviser.

Study and Learning in AVANCE

1. Students of the AVANCE Program may register in courses of the different study programs offered by the University.

2. The AVANCE Program makes available to adults several flexible forms or study alternatives, thus facilitating the possibility of taking courses through the regular modality and other nontraditional modalities of study, including among others: study by contract with support of the Web, courses totally online, and combined study.

3. Educational activities will be conducted with suitable resources that facilitate and stimulate the learning experience, in which the professors can effectively develop the adult student classes. Each campus will provide support services that will assure the best conditions for the academic achievement of the student.

The Services Program for Adult Students offers a system of flexible admission, validation of experiences, diverse modalities of study and indivualized attention to the adult population that undertakes post-secondary and

university studies. In this way, AVANCE recognizes the continuous changes in society, the professional challenges and the need to enrich the continuous learning of adults.

AVANCE visualizes adult education as a process in which participants can face the challenges of employment, including self-employment, enhanced by a self-directed university experience.

The Program offers adult students the opportunity to:

1. Acquire necessary experiences that stimulate personal development and strengthen adult citizen development.
2. Promote learning experiences by means of special study sessions, flexible schedules and a diversity of academic terms, through the use of nontraditional curricular modalities, such as online courses, combined courses of study and study by contract with *Web* support.
3. Offer validation of learning experiences by means of written tests, proficiency tests and portfolio.
4. Update, expand and reorient their professional education beyond the academic degrees they already have.
5. Have the means for the acquisition of an academic degree that aims to enable the adult in the performance of a profession in accord with the demands of the present world.

Admission of New Students to AVANCE

Students, who do not own university experience and request admission to the program, must comply with the following requirements:

1. Be at least 21 years old or be legally independent, as demonstrated by means of an official and valid document (copy of the Birth Certificate, copy of the Liberation Document, copy of Marriage Certificate or copy of a document issued by some pertinent agency).
2. Present evidence of graduation from an accredited high school or equivalent.

The chancellors shall use administrative procedures and strategies that assure that the institutional commitment to offer students the necessary services while attending the University, are met. The adequacy, effectiveness and efficiency in offering these services contribute to improve learning, a higher retention rate and a good image in the community.

Changes from the Regular Program to the AVANCE Program

Active students of the regular programs, who wish to change to the Services Program for Adult Students of Inter American University of Puerto Rico, must meet the following requirements:

1. Be at least 21 years of age or be legally independent at the time they request readmission. This must be demonstrated by an official and valid document (copy of the Birth Certificate, copy of the Liberation Document, copy of Marriage Certificate or copy of a document issued by some pertinent agency).
2. Meet the Satisfactory Academic Progress Norms. Students whose general average is less than 2.00 must also receive orientation from an adviser designated at the unit.

Placement Tests for AVANCE Students

1. Students who have not taken the “College Entrance Examination Board” (CEEB) test will be given a placement test in English. This will determine the level of the English courses in which the student must register.
2. Transferred and re-admitted students that do not present evidence of having passed English will be given a placement test in this subject, unless they present the test results of the CEEB.
3. The preparation of the placement test in English will be coordinated by the Vice-presidency for Academic and Student Affairs and Systemic Planning.

Readmission of Students Requesting a Change to the AVANCE Program

Regular students who have interrupted their studies for one year or more may be re-admitted to the Services Program for Adult Students of Inter American University of Puerto Rico, if they meet the following requirements:

1. Be at least 21 years of age or be legally independent at the time they request readmission. This must be demonstrated by an official and valid document (copy of the Birth Certificate, copy of the Liberation Document, copy of Marriage Certificate or copy of a document issued by some pertinent agency).
2. Comply with the academic progress requirements. Students, who have a grade point index of 2.00 or less, must in addition, receive orientation from an adviser designated in the unit.

Declaration of Major by AVANCE Students

Students admitted to the AVANCE Program will make their declaration of major at the time of their admission. For all the official purposes, students of the AVANCE Program will strictly observe the Satisfactory Academic Progress Norm established in the General Catalog of Inter American University of Puerto Rico.

Distance Learning

Inter American University of Puerto Rico recognizes that technology and information systems are essential in the transformation of experiences that promote learning. Likewise, they are strategic components of the institutional infrastructure for supporting academic development and facilitating management. In harmony with Vision 2012, Inter American University is moving toward the transformation of the teaching and learning processes by developing new educational emphases through the incorporation of technology. Students will assume more responsibility for their learning, the faculty will become facilitating agents and the curriculum will be made more flexible with multiple modalities.

In this way, the Institution increases the extent of its academic programs, maximizes its resources, reaches beyond the limits of the traditional classroom and promotes and provides new alternatives for continuous education.

Distance learning is conceived as a formal educational process in which the major part of the instruction occurs when the student and the instructor are not in the same place at the same time. This is a planned experience in which the variety of synchronic and asynchronic technologies such as: Internet, videoconferences, interactive videoconferences in audio and in video, and other modalities are used to promote learning when the student is at a different location from that of the professor. These experiences are designed to stimulate interaction and verification of learning.

Admission to Distance Learning Programs

The admission requirements for students interested in undergraduate studies totally through distance learning are presented below. The information includes: (a) Admission of Students from the Educational System of the United States of America and Puerto Rico, (b) Admission by Transfer from Other University Level Institutions, (c) Admission of Students from Other Educational Systems and (d) Special Admission of Students not interested in a Degree or Academic Title.

A. Admission of Students from the Educational System of the United States of America and Puerto Rico

Students from the educational system of the United States of America and Puerto Rico must:

1. Present evidence of graduation from an accredited secondary school or its equivalent with a minimum grade point index of 2.00
2. Present the scores obtained in the one of the following admission tests, or equivalent:

    a. Test for Evaluation and Admission to University Studies (PEAU) administered by the College Board of Puerto Rico.
    b. Scholastic Aptitude Test (the SAT) administered by the College Board in the United States of America.
    c. American College Testing (ACT).

3. Obtain a minimum admission index of 800. This index is calculated by using the test results and the high school grade point index.
4. Be interviewed by the means available when deemed necessary

B. Admission by Transfer from Other University Level Institutions

Candidates for admission by transfer from other university level institutions must:

1. Submit the admission application with an official copy of the academic transcript from the university or college of origin. The copy of the transcript must be sent directly from the offices of the registrar of those institutions to the appropriate Admissions Office of Inter American University.
2. Have at least twelve transferable semester credits with a minimum grade of C from another accredited institution. When an academic program has different grade requirements, students must meet these minimum grade requirements.
3. Meet the particular admission norms of the academic programs for which admission is requested.
4. Meet the minimum grade point index indicated in the satisfactory academic progress policy of this University. All courses taken will be considered in determining the fulfillment of this requirement.
5. Not be under suspension for disciplinary reasons by their former institution.
6. Students, who have not taken courses in English, must present their College Board results for placement in the different levels of English.

Students who have approved less than twelve transferable credits in the institution of origin, will be evaluated in agreement the norms applicable to applicants without university studies. If they are admitted, they will receive credit for the transferable academic work of the other institution.

C. Admission of Students from Other Educational Systems:

Without University Studies

Students from other educational systems with no prior university studies must present official evidence of having satisfactorily completed, in their country, secondary studies equivalent to graduation from high school in Puerto Rico.

With University Studies

Students with university studies must present official evidence of these studies. The University will evaluate the credentials to determine the student's eligibility to enter the academic program for which admission is requested.

D. Special Admission of Students not Interested in a Degree or Academic Title:

Students interested in taking courses totally through distance learning, but not interested in a degree or university title, must present evidence of having satisfactorily completed the secondary studies equivalent to the high school graduation requirements in Puerto Rico.

Objectives of Distance Learning

1. To utilize technology as an instrument to increase and strengthen the University Mission in its global context.
2. To develop new approaches so that students may assume greater responsibility for their learning and faculty may become better facilitating agents of the learning process.
3. To share and maximize academic programs and institutional resources beyond the limits of the Campuses.
4. To promote equal opportunity for information access beyond the limits of time and space.
5. To increase the student population to which Inter American University offers academic programs.
6. To facilitate the establishment of collaborative agreements and consortia with other educational institutions in and outside Puerto Rico with the purpose of strengthening and sharing academic offerings.

7. To strengthen and enrich developmental programs and professional update.
8. To meet the particular needs of students with disabilities.
9. To meet the multiple needs of a heterogeneous student population.
10. To meet the particular needs of the adult population.
11. To extend institutional services beyond geographic frontiers.

Technologies and Media Used in Distance Learning

Distance learning uses diverse technologies for the transmission of video, voice and data, thus, making possible a teaching and learning process beyond the limits of time and space. There are a variety of courses using these technologies as the basis for the learning experience, for example, interactive video conference courses, televised courses, radio courses, video courses, online courses, courses recorded on CD-ROM, desktop conferencing and courses on the Internet. All courses differ in the means used to achieve teaching objectives: the teaching process for promoting the development of concepts and skills, the degree of interaction between faculty-student and student-student, and the assessment and certification of learning.

Inter American University has incorporated various technologies and media into its teaching and learning process. These include interactive videoconference, video courses, courses on line and Internet courses.

Interactive Videoconference

These are courses offered by the synchronic modality that involve interactive transmission of video, voice and data. The course originates in one place with participating students in remote localities. The faculty-student and student-student interaction occurs in a simultaneous or synchronic manner. The instructor may make use of electronic presentations and other computerized materials, as well as segments of video and other educational materials. This implies previous and extensive planning and development of such materials. In addition, the prior sending of materials for each session by means of fax, Web, or e-mail is required. Also, the presence of a facilitator or official in charge of the discipline (for example, a teaching assistant or graduate student in an internship) and compatible videoconference equipment are required at the remote sites.

Video Courses

These are courses prerecorded in video for loan, rent or sale to distance learning students. The faculty-student interaction is accomplished by telephone, fax, e-mail or other means designated by the faculty.

Courses on Line

Courses are offered through the World Wide Web. Students have computers with access to the Internet where they will receive materials and send their assignments and other work. The communication and interactivity between faculty-student and student-student is attained primarily through the Internet, e-mail, discussion forums and chats. This modality requires the development of all materials and their inclusion in a Web server prior to the initiation of the course offering. If students desire to access the courses from outside the University, the Institution guarantees them remote access to information resources but students are responsible for having their own computers.

Internet Courses

These are courses for which students are given the course syllabus, course materials and an e-mail account. Students have computers with access to the Internet to communicate with the instructor. The communication and interactivity between faculty-student and student- student is attained primarily by e-mail. If students desire to have access to the Internet from outside the University, the Institution guarantees them remote access to information resources but it will be the responsibility of the students to have their own computer.

In summary, the combination of media and technology and their complementary use in the traditional classroom promise to enrich learning experiences at the University.

Combined Study Courses

These are course in which the student combines the modalities of class attendance and study on-line. The combined study modality offers students the opportunity to take fifty percent of the teaching-learning process through direct contact (faculty-students) and fifty percent of this process through the World Wide Web in each academic term. Each student has access to a computer with connection to the Internet where the student receives the materials and sends the assignments and other class work. The communication and interaction (faculty-students) take place primarily in the class attendance sessions. For this reason, class attendance is fundamental and obligatory in order to give continuity to the works assigned on the Web.

Proctored Evaluations

This refers to the evaluations administered by authorized personnel other than the course professor in the distance learning modality. The evaluations are administered in a locality accessible to the student.

Each campus will establish the rules and procedures for the administration of proctored evaluations in distance courses.

Teleconference Center

The University has a Teleconference Center whose mission is the systemic coordination of the application of telecommunication tools as well as those of interactive videoconferences in distance learning. This Center promotes faculty competence and interactive distance learning through courses, teleconferences, meetings, seminars, and lectures. The Center provides simultaneous interaction with video, voice and data, which permits complete interaction between faculty members and students located at distant sites. At present, the Central Office of the System, as well as the Arecibo, Barranquitas, Bayamón (including the School of Aeronautics), Guayama, Metropolitan, Ponce and San Germán Campuses have videoconference rooms equipped with advanced telecommunications technology that permits the integration of multimedia.

Tuition, Fees and Other Charges

ADMISSION APPLICATION

Masters Degree Students	$31.00 with application
Doctoral Students	$75.00 with application
Law Students	
Application	$63.00 with application
Admission	$125.00 upon admission
Optometry Students	$31.00 with the request

READMISSION APPLICATION

All Students	$13.00 with application

TUITION

Postsecondary Technical and Vocational Certificates	$154.00 per credit
Undergraduate Courses (Except Medical Technology and Engineering Courses)	$170.00 per credit
Medical Technology Program (Undergraduate)	$6,000.00 per year
Engineering Program	$176.00 per credit
Master Program	$202.00 per credit
Doctorates (Except Entrepreneurial and Managerial Development)	$297.00 per credit
Doctor in Entrepreneurial and Managerial Development	$417.00 per credit
Auditing	50% of regular cost per credit

School of Law

Students admitted or readmitted in 1996-97	$300.00 per credit
Students admitted or readmitted in 1997-98	$325.00 per credit
Students admitted or readmitted in 1998-2001	$350.00 per credit
Students admitted or readmitted in 2001-2003	$400.00 per credit
Students admitted or readmitted in 2003-2008	$410.00 per credit
Students admitted or readmitted in 2008-2009	$425.00 per credit
Students admitted or readmitted in 2009-2010	$450.00 per credit
Students admitted or readmitted in 2010-2012	$457.00 per credit
Master's of Law	$650.00 per credit
Auditing without credit	50% of the regular cost per credit at the time that they were admitted or readmitted

School of Optometry

Regular Program -annually (2 semesters) first to third year	$25.500.00
Regular Program –annually (2 semesters) fourth year	$24,500.00
Summer Students -per credit	$1,500.00
Special Students -per credit	$1,500.00
Auditing without credit	50% of the cost per credit for special students

GENERAL AND OTHER FEES

Fees Applicable to all Units except the School of Law and the School of Optometry

General and Other Fees	Semester	Trimester	Bimester	Summer Session
General Fee	$60.00	$40.00	$32.00	$28.00
Student Activities and Council*	$14.00	$10.00	$8.00	N/A
Information Access Center	$25.00	$17.00	$13.00	$12.00
First Aid Center*	$15.00	$10.00	$9.00	$6.00
Student Center *	$19.00	$13.00	$10.00	$6.00
Infrastructure Fee: Undergraduate 9 credits or more	$64.00	$47.00	$40.00	$40.00
Infrastructure Fee: Undergraduate fewer than 9 credits	$36.00	$28.00	$36.00	$36.00
Infrastructure Fee: Master's and Doctorate	$64.00	$47.00	$40.00	$40.00
Construction, Improvements and Maintenance Fee: Undergraduate 9 credits or more	$63.00	$44.00	$35.00	$31.00
Construction, Improvements and Maintenance Fee: Undergraduate fewer than 9 credits	$44.00	$31.00	$35.00	$31.00
Construction, Improvements and Maintenance Fee: Master's and Doctorate	$63.00	$44.00	$35.00	$31.00
Social Work: Declared Majors	$63.00	$42.00	N/A	$31.00
Maintenance of Active Status Fee: Masters	$25.00	$25-00	N/A	N/A

***Does not apply to distance learning students who reside outside Puerto Rico in this particular academic term. The fee for the Student Center is charged in the academic units that have a Center.**

Fee for access, transit and parking of vehicles, up to a maximum of	Semester	Trimester	Bimester	Summer Session
All units except School of Law, School of Optometry and the Bayamón and Metropolitan campuses	$20.00	$14.00	$10.00	$10.00
School of Law and School of Optometry	$30.00	N/A	N/A	$10.00
Bayamón Campus	$30.00	$20.00	$15.00	$10.00

Fees Applicable to the San German Campus and the Metropolitan Campus

Fees	Semester	Trimester	Bimester	Summer Session
Fee for Doctoral Program in Entrepreneurial and Managerial Development	$350.00	$235.00	$175.00	$175.00
Music Program for those registered in one course	$63.00	$63.00	N/A	$63.00
Music Program for those registered in two or more courses	$125.00	$125.00	N/A	$125.00
Maintenance of Active Status: Doctorate	$31.00	$31.00	N/A	N/A
Special fee for Masters Programs in Business Administration for Executives	N/A	$31.00	$300.00	N/A

Fees Applicable to the Medical Technology Program (Metropolitan Campus and San Germán Campus)

Program Admission Fee	$31.00 with application
Infrastructure Fee	$128.00 per year
Construction, Improvements and Maintenance Fee	$126.00 per year
Information Access Center	$50.00 per year

Fees Applicable to the School of Law

	Semester	Summer
General Fee	$60.00	$60.00
Student Activities and Council	$20.00	N/A
Information Access Center	$25.00	$12.00
First Aid Center	$15.00	$6.00
Infrastructure Fee	$64.00	$40.00
Construction, Improvements and Maintenance Fee	$125.00	$63.00
Graduation Fee	$100.00 with the request	
Law Journal	$15.00 once a year upon registration	

Fees Applicable to the School of Optometry

	Semester	Summer
General Fee	$60.00	$50.00
Student activities and Council	$37.00	N/A
Center for Access to Information	$2500	$12.00
Infrastructure Fee	$64.00	$40.00
Construction, Improvements and maintenance Fee	$63.00	$31.00
Graduation	$200.00 with application	
Laboratory	$38.00 per course when required	
Clinic Fee	$200.00 per course when required 3rd and 4th year	

OTHER FEES

Applicable to All Units

Late Registration	$50.00 upon registration
Partial or Total Withdrawal from Courses	$6.00 upon withdrawal
Additions of courses or changes of one course for another	$6.00 upon change
Deferred Payments Arrangement	$6.00 upon arrangement
Late Payment of Deferred Payment	5% of total debt when lateness occurs
Late Final Examination	$19.00 per examination
Removal of Administrative Action Symbol "I" (Incomplete)	$19.00 upon application
Academic Evaluation Fee	$10.00 with the request
Graduation (Except School of Optometry)	$100.00 all degrees
Transcript of Credits	$3.00 per transcript
Bank Returned Checks	$26.00 each time
Identification Card Replacement	$7.00 with each request

Applicable to All Units except the School of Law and the School of Optometry

Change of Major	$13.00 with application starting with second change
Internship or Practice Teaching	$19.00 per credit

Proficiency Examinations	50% of regular cost per credit
Comprehensive Examination (Masters)	$25.00 upon application
Portfolio Evaluation	50% of regular cost of a 3 credit course
Laboratories (all disciplines, except the Engineering Program and Open Labs)	$90.00 per hour laboratory
Open Laboratories	$30.00 per course
Engineering Program	
Chemistry and Physics Laboratories	$180.00 per course
Engineering Laboratories	$300.00 per course
Nursing Program	
Program Assessment Fee	$50.00

Fees applicable to Bayamón Campus only

Laboratories, Airway Science Program	
Individual Single-engine Airplane	$140.00 per hour
Dual Single-engine Airplane	$160.00 per hour
Complex Single-engine Airplane	$225.00 per hour
Multi-engine	$275.00 per hour
Flight Training Device	$60.00 per hour
Individualized Flight Theory (Ground)	$20.00 per hour
Masters in Biology	$150.00 per hour, advanced semester

Fees applicable to Metropolitan Campus only

Fee for access, transit and parking of vehicles	
Parking multifloors and other facilities	$1.00 for each use
Popular Music Program	$125.00 when declaring major
Special Fee Nursing Program only	
for the English Trimester Program	$40.00 per trimester
To complete the Doctoral Program Dissertation course	$235.00 per credit hour

Applicable only to the San Germán Campus

Architecture Program	
For those registered in one course	$63.00 per semester
Two or more courses	$125.00 per semester
Room and Board	
Eunice White Harris and Dr. Angel Archilla Cabrera Dormitories	
Room per person (4 occupants)	$500.00 per semester
	$175.00 per summer session

(The cost for room is refundable if requested 25 University workdays before the start of classes for each semester or 7 University workdays before the first day of classes for the summer sessions.)

Dormitory Room Reservation	$25.00 with application

(The deposit for the Dormitory Room Reservation is applicable to the Room Fee: this is refundable if not admitted to the dormitory.)

Loss of room key	Depending on the cost of lock replacement

Meals - 5 days per week $750.00 per semester

(This includes three meals daily Monday through Friday, beginning on the first day of classes until the last day of final examinations. It does not include official University Holidays nor Saturdays or Sundays.)

Fees and other charges are not reimbursable after the beginning of classes.

Board: The student will be entitled to a prorated adjustment for the cost of meals for the time that the services are not used when the student withdraws from the University.

Room: These charges are not refundable, unless the space is immediately occupied by another student.

CHANGES IN TUITION AND FEES

The University reserves the right to change tuition fees and other charges when:

1. There is an increase in educational and general fees and/or mandatory transfers.
2. Budget projections indicate a possible increase in these costs.
3. After careful analysis of any particular situation, the University administration determines that such changes are reasonable and justified.

PAYMENTS

The total cost of tuition fees and other charges is payable at the time of registration.

The difference between the total cost of tuition, fees and other charges and the total amount of financial aid a student receives (except aid received under the Federal Work-Study Program) is payable at the time of registration.

Payments may be made by means of money orders, checks drawn to the order of Inter American University of Puerto Rico or in cash. Payment may also be made by MasterCard, Visa, American Express or ATH debit cards. In addition, payments may be made through Banco Popular de Puerto Rico at any of its branches, by mail or by telepago.

Deferred Payment Arrangements

The University grants students the privilege of a deferred payment for 50% of the total cost of registration per semester, trimester or bimester upon signing the deferred payment document 'Pagaré Único.' To be eligible for deferred payment, students must have liquidated any debts from previous academic terms. In no case shall the total amount deferred exceed the balance of the debt after discounting the financial aid benefits or loans.

The chief executive officers of the academic units may, in exceptional cases, increase the percentage of the deferral if it is understood to be beneficial for the Institution after an analysis that indicates, with a reasonable degree of assurance, that the debt will be paid.

No deferred payment will be given for amounts less than $50.00.

The payment of the deferred total cost of tuition, fees and other charges becomes due seventy-five (75) days after the first day of class in a semester calendar, forty-five (45) days in a trimester calendar, and thirty (30) days in a bimester calendar. The deferred amount for semesters is due in a maximum of three equal installments, two payments in the case of trimesters, and one payment in the case of bimesters.

The award of a deferred payment carries a fee to cover part of the administrative expenses of this service. There will be a charge of 5% on an installment that is not paid by its due date.

It is the responsibility of each student to know when payments are due and make arrangements accordingly.

Students who do not meet their financial commitments by the due date may be suspended and will not receive a grade in courses in which they have enrolled. Students who have not met their financial commitment will lose their rights to receive University service until their debts are removed in accordance with the Federal and Puerto Rican regulations.

THERE IS NO DEFERRED PAYMENT PLAN DURING THE SUMMER SESSIONS except by authorization of the Vice-President for Financial Affairs, Administration and Services. This deferred amount must be paid within thirty (30) days from the last day of classes of the summer session in which the aid was awarded.

Debts for other Reasons

When students or former students of the University are in debt to the University for any cause other than that of a deferred payment as explained in the Catalog, independently of any payment plan granted or any collection procedure that may be initiated or has been initiated, they lose their rights to receive University services until the debt is paid in full.

Students transferred from another educational institution who have debts with any of the federal financial aid programs will not be eligible for financial aid at this University.

ADJUSTMENTS AND REIMBURSEMENTS

Partial Withdrawal

Per Semester, Trimester, Bimester and Summer Session:

100% of the cost of the credits and laboratory fees (not including other fees) that are dropped before classes begin.

75% of the cost of the credits and laboratory fees (not including other fees) dropped during the first and second day of class.

50% of the cost of the credits and laboratory fees (not including other fees) dropped during the third and fourth day of class.

THERE WILL BE NO REIMBURSEMENT AFTER THE FOURTH DAY OF CLASS

These adjustments will apply to students that pay the total cost of registration in cash.

Institutional Policies and Procedures of Return of Funds Applicable to Students with a Total Withdrawal

The Policy for Return of Funds is applicable to all students that pay their registration in cash, with financial aid under Title IV Programs, or from other state or institutional programs or from health allied programs or with any other payment method and who officially withdraw from all courses, stop attending class, never attended class or are expelled from the University.

Return of Funds to Title IV Programs

Students who officially withdraw: To determine the applicable percentage the last date of withdrawal up to 60% of the term.

Students who stop attending class: The Policy for Return of Funds will be applied up to 60% of the term with a refund equivalent to 50% of the assigned funds.

Students who never attended class: One hundred percent (100%) will be refunded

Return of Funds to State or Institutional Programs, Health Allied Programs or for Payments made in Cash or any other Method of Payment

For students who officially withdraw from all courses, stop attending class or never attended class the return of funds previously accredited will be as follows:

Per Semester, Trimester, Bimester and Summer Session:

100% return of funds before classes begin.
75% return of funds during the first and second day of class.
50% return of funds during the third and fourth day of class.

THERE WILL BE NO RETURN OF FUNDS AFTER THE FOURTH DAY OF CLASS

Per Summer Session:

100% return of funds before classes begin.
75% return of funds during the first and second day of class.
50% return of funds during the third and fourth day of class.

THERE WILL BE NO RETURN OF FUNDS AFTER THE FOURTH DAY OF CLASS

Per Intensive Session:

100% return of funds on or before the first day of class.
75% return of funds during the second day of class.
50% return of funds during the third day of class.

THERE WILL BE NO RETURN OF FUNDS AFTER THE THIRD DAY OF CLASS

Students who pay with financial aid will be responsible for the difference resulting from reimbursement to the fund and registration costs. In case a balance remains, this will be returned to the student.

Student Financial Aid

The University awards financial aid, within the limitations of available funds, to students who meet the specific requirements established by those offering the aid. Applicant eligibility for such aid is reviewed each academic year.

The Free Application for Federal Student Aid may be completed via Internet at www.fafsa.ed.gov. Application forms may also be obtained from high school principals or counselors or from the Financial Aid Office of the campuses.

Inter American University of Puerto Rico will use the results from the Free Application for Federal Student Aid to award additional federal, state and institutional funds to eligible students

Military service personnel and other qualified individuals may use their Veterans' benefits under the applicable legislation. Information on these programs may be obtained from the Registrars' Offices in the campuses.

Persons interested in detailed information concerning the eligibility requirements and the evaluation procedures used for applications should refer to the Student Financial Aid Manual and/or visit any Financial Aid Office.

Financial Aid funds originate from different sources: the United States Government (Federal Funds), Government of the Commonwealth of Puerto Rico, Inter American University and private entities.

Students who opt for a second major not within their academic program may not use Title IV financial aid to pay the costs related to these.

Federal Funds

Maximum Time Requirements for Federal Financial Aid

The period of time for which students are eligible to receive financial aid from federal sources depends on the duration of the program of studies as defined by the University. For this purpose, the University has determined the duration of its programs according to the number of credits they require. Students must complete their program of studies within a time period that does not exceed 150% of its duration. The courses considered in this percentage are those required by the selected program. Students accumulate time for transferred credits.

Federal Pell Grant

This Program was instituted by the United States Government as the basis for student financial aid programs. The original name was Basic Education Opportunity Grant (BEOG). Interested persons apply by submitting the Federal Student Aid application form that is distributed by the Financial Aid Office, post offices and high schools or by completing the application via Internet at www.fafsa.ed.gov. Following are several ways to submit the application:

1. The new student completes the application via Internet or submits it to the Financial Aid Office of Inter American University where it will be processed, electronically, to the United States Central Processing Center. Inter American University of Puerto Rico will receive information concerning the eligibility of the applicant informed on the Student Aid Report (ISIR) and will communicate this to the applicant. The advantage of this method is that it speeds up the process, avoids errors and the applicant does not have to wait to receive the response by mail. Normally, Inter American University of Puerto Rico receives the response within 72 working hours from the time the application was transmitted. This method speeds up the process because:

    a. The Free Application for Federal Student Aid (FAFSA) is available on Internet and may be completed from anywhere at anytime.
    b. Information does not need to go through the mail.

c. If the application is not approved or if information was assumed in the approval process, the Financial Aid Director can help and can get in touch with the student. The Financial Aid Office corrects the error electronically.
d. If the application is approved, the financial aid offer letter will be prepared when the student selects courses for registration,
e. The payment process during enrollment is simplified. It can even be done by mail.

2. Applicants that received Federal Aid at Inter American University of Puerto Rico the previous year need only to update their application for renewal via Internet (www.fafsa.ed.gov) by using a personal identification number "PIN number" mailed by the US Department of Education. Students that do not have a PIN number may request it by accessing www.pin.ed.gov. This request will be processed immediately so the process may continue.
3. Indicate on the application the campus of Inter American University where the student intends to study, authorize said campus to receive information regarding the applicant's eligibility and send the application by mail. This method is not as fast as the one described in item #1 because the application is sent by mail to an intermediary agency where the data information is entered and transmitted to the Central Processing Center. Furthermore, the information is not reviewed by a financial aid official to avoid errors. The response is electronically transmitted to Inter American University.
4. Send the application by mail without authorizing Inter American University to receive the information electronically. This is the slowest method in processing the application since the application and the response are processed by mail and the University cannot process the application for the grant until the applicant receives it by mail and submits the answer to the Financial Aid Office.

The Financial Aid Officer will determine the amount of aid to be awarded by using the formula which considers the cost of education, the academic load and the Expected Family Contribution.

Eligibility for the Federal Pell Grant expires when the student completes the academic requirements for the first Bachelor's Degree. Upon completion of the second year of study, students must maintain a minimum grade point index of 1.50 in order to receive federal financial aid.

Students that received their first payment of Federal Pell Grant after the July 1, 2008 have only 18 semesters or equivalent terms to receive this grant,

Federal Supplemental Educational Opportunity Grant (FSEOG)

Inter American University of Puerto Rico distributes this grant to students who have not completed any Bachelor's Degree. Awards go first to students with exceptional need. Priority is given to Pell Grant recipients.

Nursing Scholarship Program (NSP)

The Federal Government provides funds for students in the Nursing Program who have exceptional financial need according to the norms and criteria of the University. Students may receive a maximum of $2,000 annually or the amount reflected in their need assessment, whichever is less. To retain eligibility to these programs, students must be registered in a full-time academic load.

Perkins Federal Student Loan Program

This is a low interest loan available to undergraduate and graduate students whose studies lead to a degree. Students must demonstrate their intention to pay. They are required to sign a promissory note and other documents. Participants will begin payment on principal and interest six (6) months after the last term in which they studied with an academic loan of at least six (6) credits.

Students participating in the Program for the first time on or before July 1, 1987 will begin payments nine (9) months after the last term in which they studied with an academic load of at least six (6) credits. Students may apply

for deferral and cancellation of installments. The annual interest rate after October 1, 1981 is 5%. These funds are assigned preferably to students with exceptional needs.

These funds are matched with Inter American University funds.

Federal Direct Loans

The Federal Direct Loans Program offers both subsidized and unsubsidized loans. Subsidized loans are awarded on the basis of financial need and the federal government pays interest on the loan until the borrower begins to pay and during periods of authorized deferment. Unsubsidized loans are not awarded on the basis of need and interest is charged from the time the loan is disbursed until it is paid in full. Unsubsidized loans may not exceed the family contribution or the cost of education, whichever is less, within the limits established by the Program.

For the Federal Direct Loans program, students should apply directly to the University. After the full Free Application for Federal Student Aid (FAFSA) is reviewed the University will inform students of their loan eligibility. Students must be enrolled in an academic load of at least six credits.

Dependent undergraduate students can borrow up to:

* 5,500.00 if they are first-year students enrolled in a program of study that is at least a full academic year. $3,500 may be in subsidized loans.
* $5,500.00 if they have completed their first year of study and the remainder of their program is at least a full academic year. $3,500 may be in subsidized loans.
* $7,500.00 a year if they have completed two years of study, and the remainder of their program is at least a full academic year. $5,500 may be in subsidized loans.

Students may choose the lender they understand offers the best benefits. Inter American University of Puerto Rico does not favor any moneylender over another.

Nursing Student Loan

The Federal Government provides funds that are matched by University funds. Students registered in the Nursing Program that sign a promissory note and other necessary documents are eligible for this loan. Participants begin payments on the loan and interest at 6% nine (9) months after they discontinue studies with an academic load of at least six (6) credits. To retain eligibility to these programs, students must be registered in a full-time academic load.

Eligible students may apply for cancellation of the loan or deferral of payment.

Federal Work-Study Program

The funds provided by the Federal Government to this Program are augmented by funds contributed by Inter American University unless the Institution is exempt from this requirement. Participants are assigned employment for which they receive compensation, which contributes toward payment of their educational expenses. When possible students are assigned work related to their field of studies.

Commonwealth Funds

Grants for these funds depend upon the annual allocation that the Government of Puerto Rico makes for these purposes. Several financial aid programs have been created by law for the following postsecondary students: Supplementary Educational Aid Programs, Scholarship Programs and Supplemental Grants for graduate students and PROGRESAH, a program directed to honor students in their third and fourth year that have at least a 3.75 grade point average. The Financial Aid Office of each campus is prepared to offer information regarding the eligibility requirements of these programs.

Institutional Funds

Funds contributed by the University are used to complete or match financial aid from other sources as indicated in this section. The availability of funds depends on the annual budgetary assignments made for this purpose.

Institutional Scholarships

Inter American University allocates funds for scholarships each year according to student needs.

Athletic Scholarships

Inter American University allocates funds each year for athletic scholarships to eligible students who at the time the awards are made:

1. Are full-time students at this University.
2. Excel in athletics, as determined by the Athletic Department.
3. Demonstrate financial need according to the procedures established and applied by the Financial Aid Office.
4. Maintain satisfactory academic progress in accordance with the established norms.
5. Accept, in writing, the aid that is offered.

Student Development Scholarship

This is an economic incentive established and administered in the Vice-Presidency for Academic and Student Affairs and Systemic Planning to promote at the institutional level student interest in continuous learning and in participation in challenging and innovative academic experiences that enrich and strengthen their university formation.

University students and graduates may apply annually for this scholarship to participate in professional development projects such as: graduate studies, internships, research projects, cooperative education, international exchange projects, study trips, cultural activities and other professional student development activities. The amount of the scholarship depends on the scope of the project and on the available funds in the Vice-Presidency for Academic and Student Affairs and Systemic Planning.

Norms and Services Related to the Office of the Registrar

The Office of the Registrar is responsible for registration, maintenance of all official academic records of students, the issuance of transcripts and certification of studies and certification that students have met graduation requirements. It also issues study certification upon student request. There is an Office of the Registrar at each instructional unit of the University. Forms requesting services of the Registrar are also available through Internet

Registration and Program Changes

Students will register on the day and hour designated for this purpose. After registration, students will be able to make changes to their class programs during the period specified in the Academic Calendar.

1. Program modifications during the period of changes: To add or drop a course or change a course section during the period of change designated on the Academic Calendar, students should complete a change-of-program form or submit their petition for a change through electronic media. This should be presented or sent to the Office of the Registrar to be officially processed.
2. Dropping courses: After the period of program change has ended, a student will be able to drop one or more courses (partial withdrawal or total withdrawal). For partial withdrawal, the student will first consult the professor of the course and will present a completed partial withdrawal form to the Registrar's Office. For total withdrawal from the University, please consult the section "Withdrawal from the University" of this Catalog. Student may drop a class or completely withdraw from the University until the last day of class as established in the Academic Calendar.
3. When a student stops attending a course, and does not qualify for the grade of Incomplete or F, the professor will enter the symbol **UW** in the column "Grade" and will indicate the student's last date of class attendance or the student's last activity related to the course in the column "Last Attend Date", following the format of the BANNER System: DD/MON/YYYY (day, month, year).
4. Students who never attended class will receive the administrative symbol AW.

Audit Students

Students who wish to register in courses as audit students must do this during the registration or the class program change periods.

Withdrawal of a Course from the Class Schedule

The University will make every reasonable effort to offer courses as announced, but it reserves the right to withdraw a course from the schedule, when it is deemed necessary.

Intra-University Transfers

Students wishing to transfer from one campus to another must meet the admission norms of the program they are requesting. Student will notify their intentions to the Office of the Registrar of the campus to which they wish to transfer. The Office of the Registrar must verify that the student does not have restrictions in the system, such as: debts, incomplete documents or other restrictions before completing the transfer.

University Policy Regarding Students and Alumni Directory

The University, in compliance with federal law "Family Educational Rights and Privacy Act (FERPA), provides students and alumni access to their academic files, the right to request that the information contained in those files be amended and certain control over the disclosure of academic information.

1. Students and alumni have the right to inspect and review their academic files. They may request this in writing to the file custodian and indicate the file they wish to review. The file custodian will make the necessary arrangements so that the student or alumni may review the files within a period of time no greater than 45 days from the date in which the student or alumni presented the written request. If the person receiving the request from the student or alumni does not have the file, this person will indicate the correct place for the request to be presented.
2. Students and alumni have the right to request that incorrect information contained in their academic files be corrected. Interested students or alumni must present a written request to the University official in charge of the file, indicate the part of the file to be corrected and explain the mistake. If the University decides not to correct the file, the student or alumni will be notified of this decision in writing and the person will be informed of the right to request an informal hearing.
3. Students or alumni have the right to prevent the University from disclosing personal information found in the academic files, except in those cases where FERPA authorizes disclosure. These cases include the following:

    a) Disclosure of information to Institution officials. Institutional officials are taken to mean administrative or teaching employees, persons contacted by the University, members of the Board of Trustees and student members of special committees.
    b) Disclosure of Directory information. The University has designated the following data as Directory information: student or alumni name, address, major and year of study. Students and alumni have the right to prevent the University from disclosing Directory information to third parties. The disclosure to third parties includes the release of information to the Armed Forces. If students or alumni wish to prevent their information from being disclosed to the United States Armed Forces, it is necessary that they express their desire that no information be disclosed to third parties. To prevent information from being disclosed to third parties, it is necessary that students or alumni submit their request to this effect, in writing, to the Office of the Registrar of their academic unit. In order for the request to be effective for the academic year, it is important that students submit the request in or on September 1st of that year.
    c) Information to other universities. The University will release student or alumni information to those universities to which they request admission.
    d) Exceptional circumstances. The University will disclose student or alumni information if they are economically dependent upon their parents. The University assumes undergraduate students and alumni are economically dependent upon their parents; therefore, in some cases it may disclose information without the consent of the student or alumni to parents that request it. Undergraduate students or alumni who are not economically dependent upon their parents must present this evidence to the Office of the Registrar to prevent information from being released to their parents. Information on graduate students or alumni will not be given to parents without their consent.
    e) Emergency cases. These are cases in which the health or security of a student, alumni or other person is in danger.
    f) Immigration and Naturalization Service. The University is obliged to give information to Immigration Service regarding certain foreign students or alumni.

If students or alumni believe that the University has not complied with these obligations, they have the right to file a claim to Department of Federal Education, Family Policy Compliance Officer, 400 Maryland Avenue SW, Washington D.C. 20202-4605.

Solomon-Pombo Act

Inter American University established its institutional policy regarding the student and alumni directory for the academic year 1999-2000. This measure was adopted to incorporate the new changes in the federal laws known as the Solomon-Pombo Act. This federal law permits third parties to request from the Institution all personal data that is included by the University as Directory information.

Inter American University establishes the following data as Directory information:

Name
Major
Address
Year of study

The University exhorts all students not in agreement that these data be included in the Directory to contact the Dean of Studies of their Campus.

Student Records

Students requiring information concerning records or issuance of transcripts should contact the Office of the Registrar in the unit where they were registered.

At the end of each academic term, the Registrars will mail grade reports to their respective students. Students who believe there are errors in these reports should notify the appropriate Registrar, in writing. The deadline to submit these claims is the date established for the removal of grades of "Incomplete" in the following academic term of the same type. A student who does not receive a grade report should contact the corresponding Office of the Registrar.

Upon completion of the degree, the academic transcript will indicate the degree, and the major and minor concentrations as certified by the Council on Higher Education.

Student Academic and Personal Files

Student academic and personal files are confidential and the release or handling of information contained in them is limited to certain faculty and administrative personnel who, in the regular performance of their functions, have to work with these files. Once the documents required by the University are received, they become the exclusive property of the Institution. Students have the right to examine their academic or personnel file at any moment in the presence of an official of the Office of the Registrar. They may not make copies of the documents contained in their files, except in the cases explained below.

The information contained in the academic files may be released to parents of dependent students. Parents must present evidence of their condition as father or mother, as well as the dependency of the student through the presentation of relevant documentation. The information contained in the academic or personal files may not be released to students' parents in any other cases.

The release of information contained in the academic or personal files of students to third parties, to any type of institution, to government or judicial agencies will only be made with written authorization from the student or in compliance with an order to this effect issued by the competent authority.

Transcripts, study certification and certification of degrees are available to students who may obtain them in the Office of the Registrar. The cost of each transcript is $3.00.

Transcripts requested for transfer to another educational institution, for continuing graduates studies, completing the requirements of certifying agencies or for the purpose of employment are sent directly to the address provided by the student in the request. In no case will transcripts requested for these purposes be delivered to the student.

The request for transcripts by students whose files are active will be processed within a reasonable time that under normal circumstances should not exceed ten days from the date on which the request was received in the Office of the Registrar. The requests for transcription of students whose files are inactive require a longer time to be processed.

Change of Address

When students register, they are required to file their mailing address with the Office of the Registrar. Changes of address should be reported immediately to the Registrar. If this address is not kept up-to-date, the University will not be responsible for notifications sent to the student.

Class Attendance

Regular class attendance and meeting the requirements established for courses offered by non-traditional modalities are considered by the University as essential elements of the educational process. For this reason, class attendance is required of every student registered in courses requiring their presence. In the same manner, the fulfillment of requirements is compulsory for all courses offered by non-traditional modalities. Student participation in institutional activities will be considered a valid excuse for not attending class. Students are responsible for completing course requirements as stipulated in the course syllabus.

Students, who have not attended any classes by the end of the period of class changes with reimbursement, will be dropped administratively from the course. This includes courses offered through nontraditional modalities. The instructor, after receiving the class lists, will submit, in writing, the names of all such students to the Office of the Registrar through the Department Chairperson. For administrative purposes, these administrative drops will be considered equal to withdrawals for which the student has applied, as established in the Adjustments and Reimbursements section. Inter American University requires its faculty to report the last day of attendance, or of any other course activity of students who drop class in each academic term. For this, the faculty must keep a record of class attendance of the students, or of their participation in the other activities of the course. The faculty will report the last day of attendance, or of student participation in course activities of those students who dropped class without having withdrawn officially from the University. The administrative action symbol UW will be used to identify these students.

The last date of class attendance will be used to determine the applicable refund for students who stop attending class without officially withdrawing. This arrangement is established in harmony with University regulations.

Study in Other Institutions of Higher Education

Students desiring to take courses in other institutions of higher education either in or outside of Puerto Rico must obtain previous authorization from the Dean of Studies, who will evaluate the description of the courses to be authorized in the other institution to ascertain their equivalency with the requirements of this University. A maximum of 15 credits may be authorized for a Bachelor's Degree and 9 for an Associate Degree. The authorized credits obtained will be considered as Inter American University credits for all purposes. Courses will not be authorized for students who have transferred from other institutions with 90 or more credits.

Declaration of Major

Students will declare a major in one of the programs offered by the University when applying for admission to the University. Once they are admitted, students will receive appropriate professional and academic guidance related to the program of their interest from either the Center for Professional Orientation or from the academic department, as the case may be.

The declaration of a major does not imply admission to a program. The admission to a program depends on whether the entrance requirements of the program are met. Students who declare a major in a program that is not offered at the campus to which they were admitted must transfer to a campus that offers it to complete the degree.

Declaration of Minor

A minor will consist of a minimum of 18 and a maximum of 27 credits, according to the corresponding academic program. Students can opt for a minor than is within their Bachelor's program, according to the specifications in this Catalog.

For a minor that is not within the student's course of studies, the student will take a minimum of 18 credits and a maximum of 27 credits, according to the curricular sequence of the pereninent academic program and the academic norms of this Catalog.

Minors may include courses of the major and may not have hidden prerequisites. The courses of the General Education Program will not be included in a minor.

A minimum grade of C in the courses of the minor is required for certification. Students must make sure they meet the satisfactory academic progress norms, the retention norm, if applicable, and the maximum time required to complete their program.

All students may choose to declare at least one minor in an interest area if they so wish. This will require the approval of the academic adviser and the directors of the pertinent departments. This declaration must be made prior to the application for graduation.

If students want the minor to be certified on their transcript, they must formally indicate this, by means of the appropriate form.

The courses that belong to an academic program, which requires a board test to practice the profession, must not be used for a minor, if this interferes with the exigencies of that certification.

Change of Major

Students interested in changing their major must fill out the corresponding form and send it to the Office of the Registrar.

Withdrawal from the University

Students wishing to withdraw from the University must report to a professional advisor or to the person designated by the Chief Executive Office of the academic unit. Then, they must go to the Office of the Registrar to fill out the withdrawal form and should then proceed as directed. For withdrawals from the University by students who are completely distance learning students or for withdrawals not requested in person, students should inform their desire to withdraw to the Registrar of the academic unit by regular or electronic mail. When a student withdraws, the criteria that will be used for determining grades are outlined in the section "Registration and Program Changes".

Student Course Load

One credit hour is awarded for every 15 class hours per academic session and in the laboratory, one credit hour is awarded for 30 to 45 hours per session.

A normal course load is 12-18 credit hours per semester, 9-12 per trimester or 6-9 per bimester. Students may not take more than 18 credit hours per semester, more than 12 per trimester or 9 per bimester unless their overall grade point index is 3.00 or higher. In order to take more than the normal course load, students must have the written consent of their advisor and of the Dean of Studies of their campus. Students on academic probation because of an unsatisfactory grade point index are limited to a program of 12 credit hours per semester, 9 per trimester or 6 per bimester.

During each of the four-week summer sessions, students may enroll for a maximum of two courses provided that the number of credit hours does not exceed 7 per session.

Students who register without written authorization for credits in excess of the maximum stated above in any academic term shall receive credit only for authorized credits and shall forfeit payment made for unauthorized credits. In such cases students shall choose the courses for which they wish to receive credit. Students are classified as full-time or part-time according to the number of credits they are enrolled in. Under the semester and trimester calendars these classifications are as follows:

Full-time - twelve or more credits.
Three-fourth-time - from nine to eleven credits.
Half time - from six to eight credits.
Less than half time - five or less credits.

Repeating Courses

Students will have the right to repeat courses when not satisfied with their grades. Student will pay the repetition of courses with their own money unless the federal and institutional regulations allow the granting of financial aid. In case a course is no longer offered at the University, it will be substituted with the new course created in the curricular revision or with an equivalent course approved by the Vice-President for Academic and Student Affairs and Systemic Planning. The highest grade and its corresponding credits will remain on the student's transcript and lower grades will be changed to an R (repeated) course. When students repeat a course and obtain the same grade as in the previous term, the grade of the most recent term will appear on the transcript. The administration action symbol R and its corresponding credits will not be considered in determining if a student has satisfied the graduation requirements. Courses repeated after graduation are not considered in the computation of the graduation grade point index.

Grading System

Course grades indicate the degree of student achievement in any given course. The University has established a quality point system to be used in accumulating and summarizing these grades. This quality point system is used to determine the minimum degree of general competence for graduation and for continuing the program at any level and to assign special honors to students who excel. Grades are reported in accordance with the following grading system:

A- superior attainment; 4 honor points per credit hour.
B- above-average attainment; 3 honor points per credit hour.
C- average attainment; 2 honor points per credit hour.
D- lowest passing grade; 1 honor point per credit hour.
F- failure; no honor point per credit hour.
P- Passing; this grade is assigned to students satisfying the requirements in courses taken by proficiency examinations and for courses in which such grade is required. This grade is not included in the computation of the grade point index.
NP- Not Passing; this grade is assigned to students who fail in the courses indicated under the grade P. This grade is not included in the computation of the grade point index.

Courses completed at the University and taken in other higher education institutions having previous authorization from the corresponding authorities at Inter American University will be included in the computation of the grade point index. The grade point index is determined by dividing the total number of honor quality points by the total number of credits completed with the grades of A, B, C, D, or F.

All courses that grant academic credit require tests or other grading tools. This includes a final examination or its equivalent. Faculty members will indicate on their class register how the final grade was determined.

Change of Grades Request

Students who believe that their final grade in a course is erroneous must notify this to the course instructor. This faculty member will be responsible for discussing the evaluations with the student and if necessary will submit a grade change according to the corresponding process.

If students are not satisfied with the attention given to grade change request, they may resort to the procedure established in Article 2, Part A, number 8, of the General Student Regulations.

The deadline for requesting a change of grade will be the deadline for withdrawal with a grade of W of the academic term following the term of the same type in which the grade was given.

Administrative Action Symbols

The following symbols are used to indicate administrative action taken in regard to student status in courses for which they registered.

W- Course Withdrawal: Assigned when the student withdraws from a course after the end of the period for class changes, but no later than the last day of class. This symbol appears in the academic file.

DC- Course Withdrawal: Assigned when the student withdraws from a course before the end of the period for class changes. This symbol does not appear on the student transcript.

AD- Administrative Drop: Assigned when the University drops the student for reasons such as death, suspension or other situations warranting a drop. This symbol appears in the academic file.

AW- Assigned in the electronic register when the professor informs that the registered student never attended the course or any related academic activity. The period of registration and withdrawals will be seven calendar days starting on the first day of the semester and trimester academic term. For short academic terms it will be a period of proportional time.

I- Incomplete: When students have not completed a course requirement and present valid reasons for it, the professor may assign the symbol "I" (Incomplete). Together with the symbol "I", the professor will include a provisional grade, after assigning zero for the unfinished work. When faculty members assign an "I", they shall report to their immediate supervisor the grade that the student has earned up to that time, the evaluation criteria and a description of the unfinished work if applicable. A student who receives an "I" must remove it by the date specified on the Academic Calendar. The responsibility for removing the "Incomplete" rests on the student. If the "Incomplete" is not removed within the time specified, the student will receive the informed provisional grade. This policy will apply whether or not the student enrolls again at the University. This symbol appears in the academic file.

AU- Symbol used to indicate on student transcripts that the course was audited. No honor points or University credits are awarded. This symbol appears in the academic file.

R- Symbol used to indicate the course was repeated. This symbol appears in the academic file.

T- Symbol used to indicate the course was transferred from another institution. This symbol appears in the academic file.

UW- Assigned in the electronic registry when the professor informs, at the end of the course, that the student abandoned the class or stopped attending it, excluding the veteran students who are assigned this symbol when they stops attending for two weeks or more. The UW symbol is granted if the student does not qualify for the grade of incomplete (I) or F. This symbol appears in the academic file.

MW- Symbol used to indicate total withdrawal for military reasons. This symbol appears in the academic file.

Veterans Services

The services for veteran students are explained in the General Information section.

Academic Recognitions

Dean's List

Announcement is made at the beginning of the academic year by the Dean of Studies of those students who have a cumulative grade point index of at least 3.25 and who have in the previous year achieved an academic index between 3.25 and 3.84.

1. When considering students to be included in the Dean's List, the academic year will be defined as the period from June to December of each calendar year and from January to May of the next calendar year.
2. To be considered to form part of the Dean's List, students must have passed at least twenty-four (24) credits during the previous academic year.
3. The Registrar will submit the list to the Dean of Studies who will then notify the students that have attained this distinction.

The student transcript will reflect the academic years in which the student was on the Dean's List.

Chancellor's List

At the beginning of the academic year the Chancellor will announce the names of students who have a cumulative grade point index of at least 3.85 and who have in the previous year achieved an academic index of at least 3.85.

1. When considering students to be included in the Chancellor's List, the academic year will be defined as the period from June to December of each calendar year and from January to May of the next calendar year.
2. To be considered to form part of the Chancellor's List, students must have passed at least twenty-four (24) credits during the previous academic year.
3. The Registrar will submit the list to the Chancellor who will then notify the students that have attained this distinction.

The student transcript will reflect the academic years in which the student was on the Chancellor's List.

Academic Excellence in Majors Award

In the activity for Recognition of Student Achievement recognition of academic excellence will be given to the student or the students with the highest grade point average in their major if they meet the following criteria:

1. Have a general academic index of 3.50 or more.
2. Have taken at least 30 percent their major credits at Inter-American University with a grade point index of 3.50 or above.

Student Leadership Award

In the activity for Recognition of Student Achievement recognition of student leadership will be given to the student or students, who meet the academic progress norms, are recommended by the faculty and/or the administration and who meet any of the following requirements:

1. Outstanding participation in student organizations.
2. Distinction in the external community.
3. Contribution in improvement of university community conditions.

Support Services and Student Life

Academic Advisement

The University offers academic advisement services to its students. Once a formal declaration of major has been made, the academic advisor assigned to each student will assist in the process of developing student study potentials to the utmost.

Students should meet with their academic advisor prior to registration to receive orientation on their program of studies. Students are responsible for the courses in which they register.

University Orientation Program

Inter American University of Puerto Rico recognizes that to develop an educated person, it is necessary to provide a set of integrated educational experiences and programs and support services. Among the services offered by the University is the University Orientation Program. The mission of this program is to promote the integral development of students, so they may achieve their formative goal, and therefore, their self realization and well-being.

Professional counseling, as a support process, has a preventive approach as well as one for the development of individuals, although if necessary, it identifies, refers and coordinates services for students who may show pathological conduct in the educational scenario.

The Services of the Program are offered by licensed professionals who help students to develop the skills necessary to obtain the greatest benefit from the university experience. Therefore, orientation is directed toward attending the different needs of the university student in the following areas:

1. **Personal**: interpersonal relations, self-esteem, self-knowledge, motivation, decision making, etc.
2. **Vocational**: exploration and selection of careers, vocational decision making, definition of academic objectives, selection of major, etc.
3. **Educational**: different study techniques, academic motivation, etc.

Student Services and Activities

Audiovisual Center

Each Center offers a variety of audiovisual services to assist in the teaching-learning process. These use the most modern technological resources available. The Audiovisual Center has two main functions: the production of audiovisual and digital materials to complement the educational process and the offering of direct services to faculty and students.

The Centers design and produce their materials in facilities for sound and television recordings and for photography and the graphic arts. Projection services for individuals and groups as well as exhibitions are offered.

In general, these Centers gear their efforts towards facilitating the imparting of knowledge. The Centers contain collections of current materials in all curricular areas.

Educational and Technological Services

The University stresses the importance of developing educational resources that complement the teaching function. As a result, several programs have been implemented to integrate the latest technological advances to the University's educational services.

Information Access Center (Library)

Each academic unit has an adequately staffed and equipped Information Access Center. These Centers are organized to function as a coordinated system. An on-line catalog provides access to all University bibliographical resources as well as audiovisual and electronic resources that are made available for computer based research.

The Centers provide remote access to electronic databases through Internet to students, faculty and administrators of the University.

Each Information Access Center has developed as an integral part of the University programs in which a number of activities take place, including the development of library skills for students, faculty and administration.

The system collection contains more than one million volumes of printed, audiovisual and electronic resources.

Medical Service

The academic units, except the School of Optometry, have a First Aid Center that offers first aid and offers guidance on the health care.

Residence Halls, San Germán Campus

At the San Germán Campus, there are separate but equal dormitory facilities for men and women. Application with a deposit of $25.00 for a room in one of the residence halls should be made at the time the student applies for admission. This deposit will be reimbursed in full upon request if the student is not accepted for admission. Application for a room should be filed as early as possible because accommodations are limited.

The application form, as well as further information about dormitories, can be obtained from the Office of the Dean of Student Affairs at the San Germán Campus. Applications should be submitted as early as possible due to the limited number of rooms available. Rooms will be reserved until the day the student is scheduled to register. If the room is not claimed by that day, the reservation will be cancelled. When students are accepted, they receive a copy of the dormitory regulations. It is their responsibility to read such regulations carefully and to follow them for their own welfare and that of other students residing at the dormitories. Students who violate dormitory rules may be required to vacate the residence or, in the case of serious violation, may be suspended or expelled from the University.

Student Activities

During the academic year, the University and the Student Council of the various instructional units sponsor a variety of cultural, social, academic, religious and recreational activities in which all students and the University community are invited to participate.

Such participation fosters personal and professional growth and provides leadership training by encouraging mutual understanding and cooperation and by emphasizing the ideals of service, good citizenship and respect for human values. The University, within the limits of its resources, endeavors to provide such activities.

There are many clubs and organizations at the instructional units. These organizations may be academic, professional, cultural, recreational, social, sports or religious in nature. The Office of the Dean of Student Affairs at the various instructional units will provide, upon request, up-to-date information on clubs and organizations and their current officers and membership.

Sports and Recreation

Inter American University has a varied sports program in which students have successfully represented the University in the Interinstitutional Athletic League and in other sports organizations in Puerto Rico and in other countries. This competition has been in basketball, soccer, volleyball, swimming, tennis, wrestling, weight lifting, softball, baseball, cheerleading, judo, and track and field.

Students participate in intramural contests as well as in the Interinstitutional League of Extramural Sports composed of the campuses of Inter American University.

In each unit, according to its individual needs, there is a program of intramural sports, which offers the opportunity to compete to students who cannot aspire to become first rate athletes. These sports and recreational activities offer students the opportunity to establish friendships, to fraternize with the University community and to develop physically, mentally and socially.

Students interested in more independent recreation can use the facilities for ping-pong, pool and tennis or they can participate in chess, dominoes and other games in competition with other universities.

Religious Activities

Reflecting the commitment of the University to its Christian roots, each campus has a Religious Life Office that responds to the Institutional Pastoral Plan promoting faith experiences from an ecumenical and Christian perspective. Each instructional unit also offers pastoral care services, spiritual enhancement and reflective experiences, in addition to the established celebrations during the liturgical year. The participation of the University community is encouraged in the different events, but is completely voluntary.

Student Councils

Student councils, as provided by the General Student Regulations, may be organized at all the instructional units of the University. Their members are elected from the student bodies according to the established procedures. These procedures provide for direct participation of the largest number of students possible from all the units.

The Student Council is given funds for organizing activities promoting student life and academic endeavors of the unit. Students on disciplinary probation are not eligible to hold posts in the Student Council.

Student concerns are canalized through the Student Councils. The Councils meets regularly with University authorities and receive relevant information about University development.

Student Participation

The University advocates student participation at all levels and in various forms. A total of 39 students with voice and vote participate in the Academic Senates of the individual Campuses. Three students: two undergraduate and one graduate, participate in the University Council. All of these students are elected by the student bodies of their respective instructional units. The procedures for the election of these students provide for direct participation of the greatest number of students possible from all the units.

Student Centers

The instructional units have student centers, which meet the needs of the University community: students, faculty, administration, alumni, parents and friends. These centers provide appropriate areas for social, educational, artistic, cultural and recreational activities.

Day Care Centers

Some campuses have Day Care Centers sponsored by the University and/or by federal agencies. These centers offer a variety of services depending on the sponsoring agency.

Parking Service and Traffic Rules on Campuses

The Traffic Laws of Puerto Rico are complimented by the campus' internal rules related to on campus traffic. All students interested in access to the campuses with a motor vehicle must obtain a permit to these effects. The permit and the payment for parking should not be interpreted as a guarantee of a parking space.

Students are responsible for observing traffic rules and driving properly. The University is not responsible for damage that vehicles parked on the premises may suffer or for articles left inside the vehicles. Any personal or property damage caused by students while driving inside University installations will be their responsibility.

Study Modalities and Learning Experiences

Special Studies and Courses

The category of Special Studies and Courses provides students with the following study options, depending on their particular interests and needs:

Seminars

Seminar work is characterized by integrating the analysis of ideas and major issues of one or more disciplines. This provides students the opportunity to use the skills and knowledge they have acquired during their studies.

Seminars are governed by the following guidelines:

1. Admission to seminars requires the approval of the Director of the Department and the professor. Bachelor Degree students must have completed at least 30 credits. Associate Degree students must have completed at least 12 credits in programs composed of 60 credits or more and nine credits in programs composed of less than 60 credits.
2. The number of students in seminar courses is limited to 15.
3. Seminars are offered on the basis of from 1 to 6 credits per course. The course must have the authorization of the Director of the Department and the Division Dean or Dean of Studies.
4. Only six credits in seminar courses will be credited towards graduation in Bachelor Degree programs and three in Associate Degree programs.
5. Seminar courses are identified by combination 297 or 497 in the first three digits, (297 Associate Degrees; 497 Bachelor's Degrees).

Special Topics

Special Topic courses permit the offering of courses that enrich student academic development. These offerings may be made when special circumstances or rare events occur or when an outstanding specialist in the field is available for teaching the course.

Special Topics are governed by the following norms:

1. Special topics may be offered for a value of from 1 to 6 credits per course.
2. The course must be authorized by the Department Chairperson and Division Dean or the Dean of Studies.
3. The titles of the special topic courses will appear on student transcripts.
4. Special topics in all disciplines are identified by the combination 197 or 397 in the first three digits (197 Associate Degrees; 397 Bachelors' Degrees).
5. Regular courses described in this Catalog may not be taken as Special Topics.
6. A maximum of six credits will be applied toward a degree at the University.

Educational Cooperation

The courses of this Program are designated to provide regular students with practical experience, which will develop their skills and increase their productivity in the work environment.

This kind of study provides the formal integration of academic studies and work experience outside the University Campus.

Students desiring to enroll in Educational Cooperation courses must meet the following requirements:

1. Have approved a minimum of 30 credits with an overall grade point index of no less than 2.00.
2. Have approved at least six (6) credits in the major with a grade point index of no less than 2.50.

3. Have filled out the application and met the interview requirements in order to confirm continued interest and explore the possibility of placement in a work setting.

Students may take a maximum of seven (7) credits in Educational Cooperation in Bachelor Degree programs and a maximum of four credits toward an Associate Degree. These courses are subject to the availability of practice scenarios.

Experimental Courses

Designating courses as "Experimental" permits the temporary offering of new courses not appearing on the official course lists of the University thus making it possible for these courses to be offered experimentally while being evaluated. Experimental courses may be offered in accord with the following norms:

1. Experimental courses may be offered with a value of from 1 to 6 credits per course.
2. All experimental courses must be authorized by the Director of the Department, and by the Dean of Studies.
3. After an experimental course has been offered for two academic years, the course must be evaluated by the Department and by the Dean of Studies. On the basis of this evaluation, it will be decided if the course shall be made a regular course.
4. The title of each experimental course will appear on student transcripts.

Individual Research

Courses of Individual Research offer students the opportunity to undertake a definite project of formal research. Students will work under the guidance of a full-time faculty member with the minimum rank of Assistant Professor.

This type of study is characterized by increased individual responsibility and research initiative required of the student.

Student desiring to take a course through individual research and who meet the requirements presented below, must draw up with the professor the official contract in which the nature of the project and the activities the students propose to carry out are clearly defined.

The contract must be approved by the Department Chairperson and the Division Dean or the Dean of Studies. To undertake Individual Research, students must abide by the following:

1. Only students who have completed 90 or more credits towards their Bachelor's Degree (or 75% of the required credits towards their Associate Degree) with a minimum overall grade point index of 3.00 may opt for individual research courses.
2. Bachelor Degree students are limited to a maximum of six credit hours and Associate Degree students are limited to a maximum of three credit hours of Individual Research to be applied toward their degree at the University.
3. Regular courses in this Catalog may not be taken as Individual Research courses.
4. Individual Research courses will be identified with a special code.
5. Each Individual Research course must be completed during the term in which the student is enrolled.

Non-traditional Learning Modalities

Study by Contract with Support of the Web

Study by contract with support of the Web is a written agreement signed by the student, the director of the department and the professor assigned to the course. By means of this modality students fulfill the requirements of a course or area of study following the instructions of his professor. This modality implies an actual contact, with a regularity previously established, and a continuous interaction between the professor and students, through the learning resources and of the didactic tools of the technological platform. The contract with support of the Web can be used in any of the components of the University curriculum (general education, courses of the major, prescribed distributive courses, minor and the elective courses). The process requires the active interaction between the student and the professor as an essential component of the contract. The General Education courses and the courses of the major offered by this modality require the favorable recommendation of the faculty specialized in the discipline or in the particular field of study.

By means of the modality of Study by Contract with Support of the Web, the student and the professor agree on the following aspects:

1. The long term goals and objectives of the student
2. The terminal objectives of the course for the period of time in which the particular contract will be in effect
3. The learning activities that the student will promise to undertake, including a description of the contents and the skills to be developed, the selection of resources to achieve the required learning and the number of credits that the Institution will grant upon the satisfactory completion of the learning activities
4. The methods, criteria or norms that will be used to evaluate the performance of the student

The negotiation of a contract between student and professor constitutes a valuable experience for the student. The reflection on goals and plans of life, the formulation of specific objectives for a particular contract, the selection of learning activities, the resources to be used and the form in which the learning will be evaluated, help to the intellectual and personal development of students. In addition, it helps students take responsibility for their learning, and develop and apply self learning skills.

Students may register in courses offered by the modality of Study by Contract with Support of the Web if they meet the following requirements:

AVANCE Students

1. Are students of the Services Program for Adult Students
2. Enrollment will require having attended an academic advisement and compliance with the satisfactory academic progress norms of the program to which they belong, except new students. Students of the Teacher Education Program and of the Social Work Program must have a minimum grade point index of 2.50.

Regular Students

1. Be a candidate for graduation and due to insufficient registration the University cannot offer the course by the traditional modality.
2. Have a general grade point index and of minimum average index in the major of 2.00, except students of the Teacher Education Program and of the Social Work Program who must have a minimum grade point index of 2.50.

Validation of Learning Experiences

The University offers students the opportunity to demonstrate mastery of content in many of the courses included in the General Catalog, through proficiency examinations. This opportunity will be given as long as the means and the proper scales exist for verifying the expected performance level and the concerned department has the necessary resources available. Students demonstrating mastery in accordance with the stipulations of this section will be granted the corresponding academic credits without attending classes. Regular students may approve up to 15 credits through this modality.

Written Tests for Validation of Learning Experiences

These consist of a written examination based on the entire content of a course. Tests in Spanish may be prepared by the Spanish faculty of the University. The tests in English and mathematics may be prepared and administered by CLEP, by the Advanced Placement tests of the College Board or by the English and mathematics faculty of the University. Passing scores on the CLEP will be those recommended by the American Council on Education for examinations given in English.

Freshman students who have obtained scores above 600 on the College Board Aptitude Test in Mathematics or in the English Achievement Test may take proficiency examinations in the basic courses of those disciplines in which such courses are obtained at least fifteen (15) workdays before the beginning of classes. Each campus will make the necessary arrangements so that students will be able to take one or more examinations within the specified time.

Proficiency Examinations

Some of the courses in the General Catalog are not suitable for testing by written examinations, as in the case of skills courses that require some type of manual performance or experimentation. In these cases, other means may be provided to measure their skills. Examples of measurements are typing exercises, supervised activities in art, music and education courses and in laboratory procedures.

The rules governing proficiency examinations are the following:

1. Students should consult the proficiency examination schedule in the respective academic departments for the dates of the examinations.
2. Students desiring to take proficiency examinations must make a request to do so in the office of the corresponding Department Chairperson at least three weeks prior to the date officially announced for the examinations. (Dates will be promulgated well in advance to allow students to apply within the specified time.)
3. Students shall have access to course syllabi and shall be informed as to the type of examination for which they should prepare.
4. Students shall pay 50 percent of the regular per credit cost for the written and performance tests. This payment must be made at least 10 workdays before the date of the examination. Payment for College Board examinations shall be according to the fees established by the College Board.
5. Students shall present and deliver to the examination proctor a written authorization from the Department Chairperson. This person will notify the test results to the student and to the Office of the Registrar which will enter the course and a corresponding grade of P or NP on the student's transcript.
6. University level credit earned through proficiency examinations will appear on the students' academic transcript with the grade of P. The minimum grade for which credit will be given is that indicated by the letter grade of C or its equivalent. In those cases where equivalencies have not been determined by prior norms or standards, the Vice President for Academic and Student Affairs and Systemic Planning will determine them.
7. Students shall not be permitted to take proficiency examinations for course in which they are enrolled.
8. Students who have discontinued their studies for a period equal or greater than one semester must request readmission before the beginning of the academic term in which they expect to take the examination.

Portfolio

The portfolio is a document compiled by the student, which contains information and evidence showing the student's experiences and achievements. In this document the student's learning experiences and achievements, except those acquired in high school, are identified, organized, developed and carefully evidenced. Students must meet the following requirements: (1) be registered or be an active student of the University, (2) have declared a major and be admitted to a program of studies, (3) meet the academic progress norms, unless they are newly admitted students. Students studying in a Baccalaureate program may obtain a maximum of 24 credits by portfolio, and those in Associate degree programs a maximum of 12 credits. A maximum of three university courses may be validated by portfolio. The portfolio should be prepared in harmony with the Institutional Guide: The Validation of Learning Experiences by Means of the Portfolio.

The academic standards governing portfolio are:

a) Academic credit is granted only for knowledge acquired and not for experiences.
b) University credit is granted only for University level knowledge.
c) The learning must have the proper balance between the required theory and practical application.
d) The decision regarding the level of competence and the corresponding credits is made by professors who master the subject matter.
e) The credits granted and accepted must correspond proportionately to the academic context for which they are awarded.

The process for presenting a portfolio is the following:

1. Interested students must request to the Director of the Department that their learning experiences be granted academic credits through a portfolio.
2. The Director of the Department will name three faculty members to constitute the Evaluation Committee.
3. The student will meet with the Evaluation Committee to receive orientation regarding the process and the criteria to be utilized to evaluate the student's learning. Once it is determined for which course or courses the portfolio will be presented, the Committee will decide if the student qualifies or not for this modality.
4. It students qualify for a portfolio, they shall pay 50 percent of the regular course tuition cost for the evaluation. After evidence of payment has been presented to the Director of the Department, this person will assign an expert faculty member to evaluate the portfolio.
5. The student will prepare and organized the portfolio in coordination with the expert faculty member, who will determine which documents should be presented and the techniques that should be used to evidence that the student possesses the required knowledge.
6. The faculty member shall determine the date on which the student should turn in the portfolio. The portfolio will be evaluated during the same academic term in which it was handed in to the faculty member.
7. During the evaluation process, the faculty member will make recommendations to the student, if necessary.
8. The faculty member will submit the results of the evaluation to the Director of the Department. If necessary, the faculty member will consult with the Evaluation Committee during this process.
9. When the evaluation of the portfolio is favorable, the Director of the Department will endorse the validation and will submit it to the Office of the Registrar for the corresponding official action.
10. The student will receive the grade of P (passed) or NP (not passed).
11. When the evaluation of the portfolio is unfavorable, the faculty member will inform the students the reason for this decision.

Student Mobility Experiences

Interinstitutional Educational Agreements

Inter American University has a series of agreements with educational institutions in and outside Puerto Rico. Students interested in learning about these agreements and in benefiting from them may request information from the Dean of Studies of the Campus, who will maintain an up-to-date register of such agreements.

Exchange and International Cooperation Program

Inter American University has approximately 90 agreements with universities and organizations of North, Central and South America, Europe and Asia. The Exchange and International Cooperation Programs adds new dimensions to the relationship between institutions, professors, researchers and students of the participating countries. It provides the opportunity to participate in a diversity of learning experiences outside the university. The agreements established with other public and private universities, institutions, foundations and national and international organizations include strategic alliances of support and collaboration for their mutual benefit. The consortia help maintain a pertinent academic offering as well as strengthen and diversify the services and processes related with learning. They also facilitate cultural enrichment and the improvement of the quality of life in the university community.

The cooperative alliances have facilitated the exchange of teaching staff, students, researchers, printed material, bibliographic collections and cultural activities. Scholarships for the University teaching staff and students have been obtained as well as donations for technological equipment and advisement in the establishment of programs, councils and institutes. Internship programs have been established for students and faculty with agencies of the federal government, the Puerto Rican Legislature, the Congress of the United States of America and with service industries.

Students interested in learning about these agreements and benefiting from them may request information from the Office of the Dean of Studies of their campus, where an up-to-date register of these educational agreements is maintained. They also may obtain information from the Vice-President for Academic and Student Affairs and Systemic Planning at the Central Office of the University System.

Internship Programs

Students who, from the second year on, are interested in applying and enriching what they have learned in the classroom through real work experiences related to their major may apply to participate in the local or national internship programs, if they qualify. Some of these internships may be validated for university credits if what has been learned may be evidenced in supervised work.

Information on the following programs may be obtained through the Dean of Students and the Dean of Studies of each campus: Córdova Congressional, Environmental Hispanic Association of Colleges and Universities, Puerto Rico Legislature, White House, Quality Education for Minorities, Student Conservation Association, and the Harry S. Truman Foundation.

Cooperative Educational Agreement with Pennsylvania State University

Inter American University and Pennsylvania State University have established a formal agreement which permits students, upon the satisfactory completion of the first three years of study at this University, to continue their studies at Pennsylvania State University. Upon completion of their prescribed studies at Pennsylvania State University, students will receive a Bachelor's Degree according to the selected curriculum from Pennsylvania State University. This agreement permits students to enroll in ten different fields of study at Pennsylvania State University's College of Engineering and in four fields of study at its College of Earth and Mineral Sciences. Students interested in

studying in the areas of engineering offered at the Bayamón Campus of Inter American University (electrical, industrial, and mechanical) may not participate in this educational agreement.

For admission to these programs at Pennsylvania State University, students should take 48 credits in General education, 23 in mathematics, 12 in physics, 8 in chemistry, 3 in computer science and 3 in economics. Some fields also require an additional course in physics and other required courses in static and dynamics. The Metropolitan and San Germán Campuses participate in this agreement.

Satisfactory Academic Progress Norm: Undergraduate Programs

The University requires that all students demonstrate satisfactory academic progress throughout their years of study. In order to meet the satisfactory academic progress norms established by the University, students must meet the following requirements:

1. Achieve a minimum grade point index in their course of study until completing the degree, according to the following table:

Grade Point Index Requirements in the Course of Study

Undergraduate	
Percent (%) Approved Credits	**Minimum Index**
25	1.50
50	1.65
75	1.80
100	2.00

2. In addition to the above, the University will also evaluate students' academic progress each time they attempt 24 credits. For this, the University will consider the number of credits approved, the grade point index and the total number of credits in the student's course of study. The grade point index is determined by dividing the total number of honor quality points by the total number of credits completed with the grades of A, B, C, D and F. Attempted credits are those of the courses in which the student has registered and obtained the grade or administrative action symbol of A, B, C, D, F, P, NP, AD, W, UW, R and T. Approved courses are those in which the grades of A, B, C, D, P and T are received.

3. Achieve a minimum grade point index of 1.50 when the student has attempted 48 credits.

4. Approve 67% of the credits attempted each time the student has attempted 24 credits.

5. Complete the course of study requirements in nine academic years or in 150% of the time required by the course of study, whichever occurs first. Students who have received a payment from the PELL grant before July 1, 2008 have only 150% of the time required to complete their course of study.

The University has established these requirements to determine the academic achievement of students. These are in compliance with the eligibility requirements to participate in federal, state and institutional financial aid. Students registered in a course of study that has academic requirements greater than 2.00, must comply with the course of study norms in order to continue in it. The evaluation to determine student academic progress will not consider the courses in which the student has received a grade of incomplete, until this has been removed.

Transfer credits are considered as part of the student's academic file for the purpose of establishing the percent of the course of study requirement credits approved, and for determining the period of eligibility to receive federal funds. Only transfer credits that may be applied to the course of study will be validated, including the elective credits. If students have already approved the elective courses permitted in their course of study, additional transfer credits will not be validated.

A student who officially withdraws from a course (W), stops attending a course (UW), withdraws for military reasons (MW) or fails a course, that is to say he obtains a grade of "F" or "NP", may repeat this or those courses as

many times as necessary and pay for them with federal and state funds. A student who passes a course with a grade inferior than the one required, may repeat it and pay for it with federal and state funds until he obtains the required minimum grade. However, if a student passes a course and wishes to repeat it in agreement with the requirements of his course of study, he can pay for it with federal and state funds only once.

When students change their major, the attempted credits associated with the courses of the previous major will not be considered for the satisfactory academic progress norm, except when these credits form part of the requirements of the new major. The courses of the new major will be paid with federal, state and institutional funds, as applicable, up to a maximum of three times, including in this count the first declaration of major.

Students who do not complete their degree within the maximum time established by Inter American University of Puerto Rico and therefore do not achieve satisfactory academic progress, will not be permitted to continue studies with federal or state financial aid. When a student exceeds the limits specified by these norms, the dean of studies or his representative will evaluate each case to determine if the student can continue studies without financial aid.

Loss of Eligibility to Receive Federal and State Financial Aid

Students, whose academic progress is not in compliance with these norms, will lose their eligibility to receive federal and state financial aid. These students should appeal that their eligibility for the federal or state financial aid be reconsidered and restored. For this, they must make their request of appeal in writing, or by means of e-mail, to the dean of studies or the person the dean designates, within a period no greater than five (5) workdays after receiving the notification of their loss of eligibility. If students decide not to appeal, they will enter a probationary period for the next academic term, but they will not receive any type of federal or state financial aid.

If students appeal the loss of their eligibility to receive financial aid and the University concludes that they will be able to achieve satisfactory academic progress during the next academic term, it will approve the appeal, and students will be able to receive financial aid only for the next academic term, under probation. If students base their appeal on worthy grounds, such as a serious disease of the student, the documented death of a member of the family nucleus, death of the spouse, or a military deployment, among others, the Committee will approve the request and students will be able to receive financial aid only for the next academic term, under probation. During their probationary status, students will give priority, but without limiting themselves, to the following:

1. Repeating those courses in which they have failed or have not obtained the grade required for their course of study
2. Approve 67% of the credits attempted by the end of the academic term.

The University will measure the academic progress of students on probationary status at the end of each academic term until they recover their satisfactory academic progress status.

Any student not receiving federal or state financial aid and whose academic progress is not in compliance with the provisions of this document will enter a probationary period of one academic term under the same conditions as a student receiving federal and state financial aid.

At the end of the probationary period, students who meet the provisions of these norms will be regarded as students with satisfactory academic progress and will be so classified. After graduation, the transcript will not reflect students' probationary or suspension periods.

Suspension for Academic Deficiency

Upon completion of the probationary period, students who do not meet these norms will be suspended for one academic year and may not use any type of financial aid. Once the year of suspension has concluded, students may be re-admitted to probationary status, under the readmission criteria of the Institution that apply to them, and, if it is determined that it is possible for them to attain satisfactory academic progress in a period of one academic year, from the date of readmission. Student re-admitted after an academic suspension may receive financial aid. The

eligibility for federal and state funds will be for one academic term. The academic progress of such students will be evaluated until they are out of probationary status.

Student suspended for a second time for academic deficiency will remain in academic suspension status for two academic years and may not receive any type of financial aid. Once the suspension period has concluded, students may be re-admitted to probationary status, if it is determined that it is possible for them to attain satisfactory academic progress in a period of one academic year, from the date of readmission. . Student re-admitted after an academic suspension may receive financial aid. The eligibility for federal and state funds will be for one academic term. The academic progress of such students will be evaluated until they are out of probationary status.

Students desiring to appeal the suspension must submit a written application of appeal or do this by means of an e-mail to the dean of studies, or to the person the dean designates, within a period no greater than ten (10) workdays after having received the suspension notification. If it is determined that there are merits in the students' request, theymay continue studies at the University, with probationary status. When evaluating the request, consideration will be given to whether students can achieve the academic progress required by the end of the next academic term.

Graduation, Honors and Diplomas

Diplomas

Diplomas must be claimed by graduates at the Office of the Registrar no later than one year following graduation. The University will not be responsible for diplomas after that date.

Any notice, official or otherwise, mailed to a student's address as it appears on the records shall be deemed sufficient notice.

Graduation Requirements

Students will graduate in agreement with the requirements of their program of studies and the regulations established in the General Catalog of the University under which they were admitted or in any single subsequent catalog but no combination thereof. Readmitted students will graduate under the program and regulations of the catalog in effect at the time of their readmission or under any subsequent catalog. In the event that a required course of the selected catalog is no longer offered by the University, substitutions may be made with the approval of the Department Chairperson. Courses required in more than one program may be credited as such in each program. Courses taken after graduation will not alter the graduation grade point index.

Graduates must meet the current laws and regulations of their profession.

Graduation Requirements for Associate Degrees

To complete requirements for graduation with an Associate Degree from Inter American University, students must:

1. Complete satisfactorily a minimum of 52 academic credits.
2. Complete the General Education academic requirements and those specified in the program for the Associate Degree for which they are candidates.
3. Achieve an overall grade point index of 2.00 or higher.
4. Achieve a cumulative grade point index of 2.00 or higher in the major.
5. Complete satisfactorily no less than one-third of all the credits required for the degree at Inter American University. Credits obtained by Proficiency Examinations will not count toward this requirement.
6. Complete satisfactorily at Inter American University no less than one-third of all course credits required for the degree.

General Education Requirements for Associate Degrees

General Education Requirements for Associate Degrees - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA		Mathematics	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Graduation Requirements for Bachelors' Degrees

In order to fulfill the basic with a Bachelor's Degree from Inter American University, a student must:

1. Complete satisfactorily a minimum of 110 academic credits.
2. Complete a major consisting of the number of credit hours specified in the curriculum of the student's major department. See the section Undergraduate (Associate and Bachelor) Degree Program and Course Descriptions.
3. Achieve an overall, minimum grade point index of 2.00, except in those programs that require a higher index. Remedial courses will not be counted toward the required academic index.
4. Achieve an overall grade point index of 2.00 or higher in the major field of study.
5. Complete satisfactorily at least 24 credits of those required for the degree at Inter American University.
6. Complete satisfactorily at least 15 credits of the major at Inter American University. (General Education courses and elective courses are not included)
7. Complete the General Education requirements for a Bachelor's Degree as established in the student's major.

General Education Requirements for Bachelors' Degrees

General Education Requirements for Bachelors' Degrees - 48 credits

Basic Skills - 24 credits

Basic Skills: Spanish	9
Basic Skills: English	9
Basic Skills: Mathematics	3
Basic Skills: Access to Information and Computers	3

Philosophical and Esthetic Thought - 6 credits

GEPE	4040	Ethical Dimensions of Contemporary Affairs	3

Select one course from the following:

GEPE	2020	Humanistic Studies	3
GEPE	3010	Art Appreciation	3
GEPE	3020	Music Appreciation	3

Christian Thought – 3 credits

GECF	1010	Introduction to the Christian Faith	3

Historical and Social Context - 9 credits

GEHS	2010	Historical Process of Puerto Rico	3

Select two courses from the following:

GEHS	2020	Global Vision of Economics	3
GEHS	3020	Global Society	3
GEHS	3030	Human Formation and Contemporary Society	3
GEHS	3040	The Individual, Society and Culture	3
GEHS	4020	Ancient and Medieval Western Civilization	3

GEHS	4030	Modern and Contemporary Western Civilization	3

Scientific and Technological Context - 3 credits

Select one course from the following:

GEST	2020	Science, Technology and Environment	3
GEST	3030	Fundamentals of Terrestrial and Environmental Sciences	3

Health, Physical Education and Recreation - 3 credits

GEHP	3000	Well-being and Quality of Life	3

Application for Graduation

Candidates for an Associate or Bachelor's Degree who have completed three-fourths of the required credits should apply for graduation no later than one academic term before the term in which they expect to graduate. Students must graduate from a campus authorized to offer the major and degree to be conferred. If the students are not studying at such a Campus at the moment of applying for graduation, they must apply at a campus in which they took residency courses. Applications may be obtained at the Office of the Registrar and should be returned to that Office after they have been filled out and stamped by the Business Office showing that the non-refundable fee of $100.00 has been paid for the doctor, master, bachelor and associate degrees. Failure to comply with this procedure may result in the postponement of the granting of the diploma.

Any alleged error in the evaluation of the application for graduation should be reported to the appropriate Registrar within a week after the receipt of the evaluation.

The payment of graduation fees of any kind, the listing of the student as a candidate for graduation in any document and/or invitation either to the graduation ceremonies or to any other activity related to graduation exercises shall not be interpreted as an offer to graduate nor a covenant to that effect. Only the completion of all requirements listed in this catalog or in any other official University directive entitles a student to graduation irrespective of any representation of any kind made by any official of this University.

Candidacy for graduation will be attained by the student after the faculty has determined that the requirements for graduation have been fulfilled. Subsequently, the faculty will present the degree candidates to the President of the University and to the Board of Trustees.

Students that have completed the graduate requirements and paid the graduation fee, but interrupt their studies, have the right that their payment be considered effective for four regular semesters or two academic years from the date of the last term in which they studied.

Graduation with Honors

The distinctions of Cum Laude, Magna Cum Laude, and Summa Cum Laude are awarded to students who have achieved academic excellence in the Associate and Bachelor degrees. To be eligible for these honors, the student must have earned an overall average of:

3.25 for Cum Laude (with honors)
3.50 for Magna Cum Laude (with high honors)
3.85 for Summa Cum Laude (with the highest honors)

These distinctions are awarded only to students who have completed satisfactorily at least 30 percent of the credits required for the degree at this University. This same grade point index will be used in granting all other academic honors.

Posthumous Degree

In case of death of a student who has fulfilled the graduation requirements, such student may be considered by the appropriate university authorities for the granting of a posthumous degree.

Academic Norms of Compliance

Course Offerings and Scheduling

This Catalog includes the courses that comprise the academic offerings authorized for Inter American University by the Council on Higher Education of Puerto Rico. However, for reasons of enrollment a course may not be offered in one campus, but offered in another. Students have the option of taking courses that form part of their academic program or authorized equivalent courses in another campus that has them scheduled for the academic term of their interest. In addition, there are academic programs that include a component of "Prescribed Distributive Requirements" that, generally, require students to select courses from among a list of courses or options. In these cases, students will select from among those courses that the campus has scheduled. However, students also have the option of taking Prescribed Distributive courses in another campus that has scheduled the courses of their interest in accord with the requirements of their study program.

Special Requirements of Practice and Internship Centers

Some academic programs of the University require students to complete a practice or internship in a real work scenario as part of the degree requirements. These external centers may be state and federal agencies, hospitals, and nongovernmental organizations, among others.

It is students' responsibility to comply with the external center's requirements in order to complete their practice or internship. Depending on the practice center, these requirements may be doping tests, HIV tests, an immunization certificate against hepatitis, a health certificate, a negative criminal record, or any other requirement that the institution or practice center may stipulate. If students refuse or are not able to meet any of the requirements, they will be unable to complete their practice or internship and, therefore, will not pass the practice or internship course or meet the graduation requirements of their academic program.

Compliance with Requirements of Regulated Professions and Employment

Some professions have licensing, certification, or professional association requirements or a combination of these in order for a person to practice the profession. Therefore, students and graduates who hope to practice a regulated profession must meet the current requirements of the organization that confers the license, certification, professional association or combination of these before initiating the corresponding proceedings with the agency or organization that applies to their profession. The licensing, certification, professional association requirements or a combination of these may vary from one jurisdiction to another. Therefore, compliance with the requirements in one area does not imply that the student also complies with the requirements of another region. Students are forewarned that the agencies that regulate the professions may change the requirements to practice these at any time.

Some employers of the private sector or government agencies have revalidation, examination or test requirements in order to choose a job. It is for this reason that, in these cases, students or graduates applying for work must meet the additional requirements beyond the studies or diplomas that Inter American University of Puerto Rico offers and confers.

Responsible Conduct in Research Projects

Any student registered in courses that require carrying out research projects or who works in a research project must comply with the laws, regulation and policies applicable to that activity. The student must take the training required by the Institution and by the applicable state and federal regulations, in harmony with the type of research project.

Institutional Review Board (IRB)

The IRB is responsible for seeing to it that the University complies with the state and federal laws and regulations, as well as with the applicable institutional norms and procedures for the protection and rights of the human beings who participate in these projects.

Once a student completes the required training, and before beginning research activities with human beings, such as their identification, recruitment, or the acquisition of information about the participants, and before contacting them and requiring their participation in the project, the student must obtain the approval of the Institutional Review Board (IRB).

Responsible Conduct in Research Projects (RCR)

Any student who works in research projects supported with external resources, or who collaborates as a research assistant to a professor in charge of a research project supported with external funds, must take the training related to responsible conduct in research required by the University and the applicable federal regulations. In addition, the student must provide evidence of having approved these trainings.

Other Research Projects

Research projects that do not involve human beings must also present evidence of compliance with institutional norms and the applicable state and federal regulations.

Warning on Compliance with Copyright Laws and Regulations

The unauthorized distribution or reproduction, by any means, of material protected by the copyright laws and regulations may entail the imposition of civil and criminal sanctions. The *General Student Regulations* contains provisions on academic honesty that cover the protection of this type of material and the breach of the provision may lead to the imposition of disciplinary sanctions.

There are legitimate ways to obtain and distribute protected materials. For more information, click here www.educase.edu/legalcontest.

Discontinuation of Academic Offerings

The University is committed to the renewal of its academic offerings, which includes the expansion, review, modification or discontinuation of academic programs offerings authorized by the Council on Higher Education of Puerto Rico. In case any academic unit of the University decides not to continue offering some academic program, students will have options available to them to complete the degree requirements. Courses on line, study by contract with support of the Web, or other nontraditional modalities may be among the options.

Undergraduate Academic Offerings

The University's academic programs are based on the premise that, in order to achieve personal success and make valuable contributions to society, students should develop broad intellectual interests as well as prepare themselves in the best way possible to earn their livelihood. These objectives may be achieved by fulfilling the specific general education requirements in the fields of art, science and the humanities and by majoring in a particular area of studies.

All Campuses offer the General Education requirements and some majors. Students should consult their academic advisor for information regarding the academic offerings of the University's instructional units.

Undergraduate Programs and Codes

Undergraduate Programs and Codes for Presential Mode

Professional Certificates and Codes

Undergraduate Programs and Codes for Distance Learning Mode

Professional Certificates by Distance Learning

Subject Codes Used in Catalog and in the System

Subject	Subject Codes
Accounting	ACCT
Anthropology	ANTH
Architecture	ARCH
Art Education	ARED
Art	ARTS
Auditing	AUDI
Airway Sciences	AWSC
Basic Skills: Access to Information and Computers (General Education)	GEIC
Basic Skills: English (General Education)	GEEN
Basic skills: Mathematics (General Education)	GEMA
Basic Skills: Spanish (General Education)	GESP
Bioinformatics	BIIN
Biology	BIOL
Biomedical Sciences	BMSC
Biotechnology	BIOT
Business Administration	BADM
Cardio-Respiratory Care	CARD
Chemistry	CHEM
Christian Thought (General Education)	GECF
Communications and Communication Technology	COMU
Computer Engineering	COEN
Computer Science	COMP
Computerized Management Information Systems and Information Technology	CMIS
Computerized Tomography and Magnetic Resonance	CTMR
Conflict Mediation	MEDI
Criminal Justice	CJUS
Criminology	CRIM
Design	DSGN
Design and Development of Video-Games	GAME
Education	EDUC
Educational Computing	ECMP
Educational Cooperation	EDCO
Electrical Engineering	ELEN
Electronic Commerce	ECOM
Electronics Technology	ELTE
Electronics Technology and Electrical Power	ELEC
Engineering	ENGR
English	ENGL
Entrepreneurial and Managerial Development	ENTR
Entrepreneurial Development	ENDE
Environmental Sciences	EVSC
Environmental Technology	EVTH
Finance	FINA
Food Services Administration	FSMT
Food Technology	FTEC
Forensic Science	FORS
French	FREN

Course Codification System

This system consists of a four letter alphabetical section that identifies the discipline, and a four digit numerical section that identifies the course level, the course itself and the course sequence if such exists.

The first digit indicates the level of complexity of the course. This is closely associated with the year of university studies in which students would normally take the course. The digits from 0 to 4 are used to identify the complexity of the courses as follows:

0 – Preuniversity Certificate Program courses
1 - First level undergraduate courses
2 - Second level undergraduate courses
3 - Third level undergraduate courses
4 - Fourth level undergraduate courses

The second and third digits are used to identify courses within the same level.

The fourth digit indicates the course sequence of two courses within the same level or indicates that no sequence exists. Sequence is indicated by the digits 1 and 2.

In addition to the meaning ascribed to individual digits, combinations in the first three digits indicate a special type of course as explained below:

1. The use of zero (0) as the first digit indicates a Preuniversity Certificate Program course.
2. The following combinations in the first three digits indicate a special type of course as explained below:

a) Associate Degrees

The combination 197 is used to identify Special Topics in all disciplines.

1. The combination 291 is used to identify supervised practicums or internships.
2. The combination 297 is used to identify seminars whose titles are not specified in the Catalog.

b) Bachelors' Degrees

1. The combination 397 is used to identify Special Topics in all disciplines.
2. The combination 491 is used to identify supervised practicums or internships.
3. The combination 497 is used to identify seminars whose titles are not specified in the Catalog.

General Education Program

Goals and Orientation of the General Education Curriculum

The University curriculum is composed of three interrelated components: general education, specialization and electives, which address the formation of the student in terms of a comprehensive education.

Inter American University of Puerto Rico offers a General Education Program that, independent of the area of specialization that the student selects, contributes to the achievement of the following goals:

Goal I	To develop an educated person through the cultivation of skills, knowledge, values and attitudes that strengthen his intellectual and moral formation.
Goal II	To develop a person interested in improving the personal, family, environmental, economic and political life of Puerto Rico and the rest of the world.
Goal III	To develop a person capable of communicating with propriety in Spanish or English and of using the other language at an acceptable level.
Goal IV	To develop a person capable of quantitative reasoning and the application of mathematical knowledge to diverse situations.

Goal V To develop a person with the basic knowledge of the use and function of the computer as a means of self-learning and for access to information.

Goal VI To develop a person with a critical, analytical and constructive mind, capable of reflecting on human being's vital problems.

Goal VII To develop a person with an ethical conscience, capable of evaluating and making responsible decisions for his life and that of others.

Goal VIII To develop a person with an esthetic sensitivity who appreciates artistic values and contributions.

Goal IX To develop a person who understands and values the Christian faith from an ecumenical openness and its implications for culture.

Goal X To develop a person who knows and understands the problems of humanity in its social and historical events.

Goal XI To develop a person who can comprehend the phenomena of nature and its methods of study as well as the contributions of science for the betterment of mankind.

Goal XII To develop a person who appreciates and maintains his physical, emotional, spiritual and social health in a way which promotes the individual and collective well being and quality of life.

The General Education Program emphasizes the development of a personal and social conscience, the refinement of communication skills, quantitative and philosophical thought; the use of technology as a means of access to information; the cultivation of ethical and esthetical sensitivity; the knowledge of principles of faith and Christian practice. This Program, which offers a comprehensive education of human knowledge, is structured on the following categories.

Basic Skills: Oral and written skills in Spanish and English as a second language, the skills of mathematical analysis and methods of quantitative and qualitative research, using emerging technology. These courses strengthen the skills necessary for a person's personal and professional life.

Philosophical and Esthetical Thought: The competencies and skills of logical thought, argumentation and rhetoric skills applying to all knowledge (critical, imaginative, contextual, synthetic, and evaluative, among others) and which constitute the principal intellectual repository for learning to learn. The development of fundamental knowledge that propitiates the refinement of musical artistic sensitivity.

Christian Thought: The development of fundamental knowledge on the history, principles and practice of Christianity and on Jesus as its central figure. From an ecumenical posture, it examines the Christian values of our society, with openness towards other religions.

Historical and Social Context: The fundamental competencies and knowledge of the social sciences and the history of Puerto Rico. Included are the economic, political, psychological and cultural analyses that foster the understanding of the performance and behavior of our people and of the global community.

Scientific and Technological Context: Fundamental competencies and knowledge of the natural sciences and the technology that foments the development of a responsible ecological attitude.

Health, Physical Education and Recreation: The competencies and skills that contribute to the development of a feeling of the necessary self esteem, confidence and discipline for personal care (physical, emotional and social) which serves as the basis for health and well-being.

The General Education Program requires the satisfactory completion of 48 credits for the Bachelor's Degree and 24 for the associate degree. It allows students to take courses following a sequence of years of study. This is accomplished through the codification of each course where the first number of the course usually responds to the year of study. It is recommended that the student take courses following the established sequence.

General Education Categories and Course Descriptions

Basic Skills

Basic Skills - 24 credits

Basic Skills: Spanish

Three (3) courses in Spanish in the established sequence are required for a total of nine (9) credits. The courses GESP 1101, 1102, and 2203 will be supported by an open laboratory (virtual).

For students whose native language is not Spanish, GESP 1021, 1022, and 2023 are the required courses. These courses will be supported by an open language and/or virtual laboratory.

GESP 1021 BASIC SKILLS IN SPANISH AS A SECOND LANGUAGE
Intensive development of linguistic skills (understanding, speaking, reading and writing). Study of the lexical and morphosyntactical aspects that will prepare students with no prior knowledge of Spanish to perform satisfactorily in that language.

3 credits

GESP 1022 INTERMEDIATE SPANISH AS A SECOND LANGUAGE
A more in-depth study of the lexical, morphological and syntactical aspects of the Spanish language in diverse contexts. Introduction to the reading of texts of intermediate complexity. Writing based on simple and intermediately complex structures.

3 credits

GESP 1101 LITERATURE AND COMMUNICATION: NARRATIVE AND ESSAY
Reading and discussion of narrative and essay works of the Spanish, Hispanic American and Puerto Rican literatures for the development of analytical and oral and written communication skills. Systematic practice of the different types of paragraphs and grammatical structures. Required course.

3 credits

GESP 1102 LITERATURE AND COMMUNICATION: POETRY AND THEATER
Reading and discussion of poetic and theatric works of the Spanish, Hispanic American and Puerto Rican literatures for the development of analytical and oral and written communication skills. Systematic practice of the different types of grammatical structures and the different types of elocution with emphasis on exposition and argumentation. Prerequisite: GESP 1101. Required course.

3 credits

GESP 2023 WRITING AND COMPOSITION FOR NON-NATIVE SPANISH SPEAKERS
The oral and written language through readings that develop the student's critical and creative capabilities: writing and composition of different types of prose: descriptive, narrative and expository. Prerequisite: GESP 1022.

3 credits

GESP 2203 WORLD VIEW THROUGH LITERATURE
Study of literature as an artistic expression and as a means for expressing reality with emphasis on refining oral and written communication skills. Includes a selection of universal literary works representative of different themes and epochs. Requires additional time in an open lab. Required course.

3 credits

Basic Skills: English

Three (3) courses in English in the established sequence and level are required for a total of nine (9) credits. This curriculum is divided into three levels: elementary, intermediate and advanced. Students will be placed in English courses based on their score on the English examination of the College Board (or its equivalent). This

placement will be made according to the following scores; elementary level, a score up to 450; intermediate level, scores from 451 to 599; advanced level, scores of 600 or above. Special cases, such as transfer students from universities or other higher education systems not requiring the College Board examination, as well as readmitted students who have not taken the basic skills in English requirements, will be required to have an interview with the Director of the English Department or the person designated, for their placement in the corresponding level. The elementary level courses (GEEN 1101, 1102 and 1103) and those of the intermediate level (GEEN 1201, 1202 and 1203) require additional time in an open laboratory (virtual).

GEEN 1101 ENGLISH AS A SECOND LANGUAGE I
Development of English as a second language. Emphasis on auditory comprehension, oral production and vocabulary acquisition in context. Requires additional time in a laboratory. Required course.

3 credits

GEEN 1102 ENGLISH AS A SECOND LANGUAGE II
Development of English as a second language. Practice in listening, speaking and reading skills. Emphasis on reading skills and vocabulary acquisition in context. Introduction to paragraph writing. Requires additional time in a laboratory. Prerequisite: GEEN 1101. Required course.

3 credits

GEEN 1103 ENGLISH AS A SECOND LANGUAGE III
Development of English as a second language. Practice in listening, speaking and reading skills. Emphasis on writing process skills using different formats and vocabulary acquisition in context. Requires additional time in a laboratory. Prerequisite: GEEN 1102. Required course.

3 credits

GEEN 1201 DEVELOPMENT OF ENGLISH THROUGH READING I
Development of reading skills. Refinement of English through oral presentations, paragraph writing and vocabulary acquisition in context. Requires additional time in a laboratory. Required course.

3 credits

GEEN 1202 DEVELOPMENT OF ENGLISH THROUGH READING II
Development of reading skills, with emphasis on critical reading. Refinement of the reading process and vocabulary acquisition in context. Requires additional time in a laboratory. Prerequisite: GEEN 1201. Required course.

3 credits

GEEN 1203 DEVELOPMENT OF ENGLISH THROUGH WRITING
Introduction to essay writing: organization process, revision and editing. Emphasis on the organization, essay paragraph development, refinement of grammar and vocabulary acquisition in context. Requires additional time in a laboratory. Prerequisite: GEEN 1202. Required course.

3 credits

GEEN 2311 READING AND WRITING
Reading and analysis oriented toward essay writing. Emphasis on organization skills, revision in the writing process and vocabulary acquisition in context. Required course.

3 credits

GEEN 2312 LITERATURE AND WRITING
Analysis and discussion of literary works. Essay writing on topics related to the readings. Emphasis on vocabulary acquisition in context. Prerequisite: GEEN 2311. Required course.

3 credits

GEEN 2313 WRITING AND RESEARCH
Planning, research and writing of academic works. Emphasis on skills for searching, comprehension, evaluation, effective use of information and vocabulary acquisition in context. Required course.

3 credits

Basic Skills: Mathematics

Three credits in mathematics are required. These courses will be supported by an open laboratory (virtual).

Students majoring in the Bachelor of Arts Degrees in Secondary Education in Biology, Sciences, Mathematics or Chemistry or in the Associate Degrees in Science or in Business Administration or in the Associate Degrees that require MATH 1500 will take GEMA 1200.

In addition, students of Associate Degrees in programs that are also offered by the University at the Bachelor's level must take the mathematics course (GEMA) required for the baccalaureate degree.

GEMA 1000 QUANTITATIVE REASONING
The content of this course is developed through problem solving and the integration of available technology as a work tool. Study of sets of real numbers, measuring systems geometry (length, area and volume), operations with polynomials, equation solving for linear variables that include ratios, proportions, mathematical financial formulas and literal equations. Basic concepts of statistics: frequency distribution, measures of central tendency dispersion. Principles of probability and methods of counting. Requires additional time in an open lab.

3 credits

GEMA 1001 MATHEMATICS FOR TEACHERS I
Study and application of the fundamental topics of the Theory of Sets, Numeration and Operation and Data Analysis and Probability. Emphasis on the development of content through problem solving. Includes communication in mathematics, mathematical reasoning, representation, the integration of mathematics with other contents, the integration of the cross-sectional topics of the curriculum and the integration of available technology as a work tool. This course is designed for elementary school teachers. A minimum grade of C is required to pass this course. Requires additional time of open laboratory.

3 credits

GEMA 1002 MATHEMATICS FOR TEACHERS II
Study and application of the fundamental topics of Measurement, Geometry and Algebra. Emphasis on the development of content through problem solving Includes communication in mathematics, mathematical reasoning, representation, the integration of mathematics with other contents, the integration of the cross-sectional topics of the curriculum and the integration of available technology as a work tool. This course is designed for elementary school teachers. A minimum grade of C is required to pass this course. Requires additional time of open laboratory. Prerequisite: GEMA 1001.

3 credits

GEMA 1200 FUNDAMENTALS OF ALGEBRA
Application of algebra to problem solving, including graphic and symbolic representations. Study of algebraic expressions with whole and rational exponents. Simplification and factorization of algebraic expressions. Binomial expansion. Real and logarithmic exponents. Equations with rational expressions, radicals, exponents or logarithms. Linear and quadratic inequalities. Linear equations in two variables and its graph. Requires additional time in an open lab.

3 credits

Basic Skills: Access to Information and Computers

Three credits are required in this category. This course will be supported by an open laboratory (virtual).

GEIC 1010 INFORMATION AND COMPUTER LITERACY
Development of skills in the use of the computer for the search and processing of information and electronic communication in the teaching and learning processes. Study of the general concepts of computer systems, electronic systems of learning and systems of information organization. Use of data bases to recover bibliographical information. Administration of computer programs, such as operating systems, word processors, electronic graphical presentations, spreadsheets calculations and Web navigators. Requires 45 hours of lecture-lab. Requires additional time in open lab. Required course.

3 credits

Philosophic and Esthetic Thought

Six credits are required in this category. Course GEPE 4040 is required.

Besides course GEPE 4040, the students of the Teacher Education Program will select GEPE 3010 or 3020 to fulfill the six credits required in this category.

Students of the Engineering and Aviation Programs will take only course GEPE 4040 in this category.

GEPE 2020 HUMANISTIC STUDIES
Philosophic reflection on language, esthetics, religion, history, society, science and technology. Logical and critical approach to everyday life affairs of the present day world. From the perspective of philosophy, the course adds an integrating method of knowledge to general education. Prescribed distributive course.

3 credits

GEPE 3010 ART APPRECIATION
Study of the fundamentals of visual arts and how these form an integral part of life. Approach to the creative and appreciative processes of universal art. Study of the historical and esthetical background in which works of art are produced. Prescribed distributive course.

3 credits

GEPE 3020 MUSIC APPRECIATION
Study of the value of music in our society. Stimulation of the enjoyment of universal music from a multicultural approach, using methods that develop auditory perception. Emphasis on the elements of music and on its basic musical forms. Prescribed distributive course.

3 credits

GEPE 4040 ETHICAL DIMENSIONS OF CONTEMPORARY MATTERS
Critical analysis of the foundations and the currently relevant ethical problems. Study of classic and contemporary ethical systems that give a combined perspective and criteria for this analysis. Includes a project related to the quality of life in a communitarian context chosen by mutual agreement between the student and the professor. Required course.

3 credits

Christian Thought

Three credits are required in this category.

GECF 1010 INTRODUCTION TO THE CHRISTIAN FAITH
Academic study of the Christian religion as part of the culture. It emphasizes the life and teachings of Jesus de Nazareth and their implications for Christian communities and the today's pluralistic society. It explores dialogs of the Christian faith with society, the sciences and technology, and with the plurality of existing creeds. It promotes commitment and communitarian service in the context of the globalization. Required course.

3 credits

Historic and Social Context

Nine credits are required in this category except for students of the Engineering and Aviation programs who will take only six credits. Course GEHS 2010 is a required course.

GEHS 2010 HISTORICAL PROCESS OF PUERTO RICO
Analysis of the historical process of Puerto Rico through the study of the economic, political, social and cultural transformations of Puerto Rico, with emphasis on the nineteenth century to the present. Required course.

3 credits

GEHS 2020 GLOBAL VISION OF ECONOMY
A vision of world economy from the end of the twentieth century to the present is developed. Emphasis on the economical policies of neoliberalism, privatization, stock market, globalization and international economic institutions. Prescribed distributive course.

3 credits

GEHS 3020 GLOBAL SOCIETY
Study of the global society and its components from an economic, political and sociological perspective. Emphasis on the analysis of concepts and reasons that foment a better understanding of the challenges and problems of the contemporary world. Prescribed distributive course.

3 credits

GEHS 3030 HUMAN FORMATION IN CONTEMPORARY SOCIETY
Study of the factors that intervene in the development and formation of human beings from a biological, psychological, social and existential approach. Analysis and reflection of the biopsicosocial factors that human beings face as a result of living in a dynamic and complex society. Emphasis on human beings as agents promoting change to improve their quality of life and that of their social environment. Prescribed distributive course.

3 credits

GEHS 3040 INDIVIDUAL, SOCIETY AND CULTURE
Analysis of the different processes of organization and cultural adaptation from anthropological and sociological perspectives. Emphasis on the impact on human behavior of evolution, systems, processes and the changes of society and the person. Case studies are integrated for understanding the dynamics of sociocultural systems. Prescribed distributive course.

3 credits

GEHS 4020 ANCIENT AND MEDIEVAL WESTERN CIVILIZATION
Analysis of the most outstanding economic, political, social and cultural processes of Western Civilization from the appearance of human beings to the end of the Middle Ages. Prescribed distributive course.

3 credits

GEHS 4030 MODERN AND CONTEMPORARY WESTERN CIVILIZATION
Analysis of the most outstanding economic, political, social and cultural processes of Modern and Contemporary Western Civilization. Prescribed distributive course.

3 credits

Scientific and Technological Context

Three credits are required in this category. Students studying for the Bachelor of Arts Degree in Secondary Education in Biology, Science in the Junior High School or Chemistry must take the course GEST 3030.

GEST 2020 SCIENCE, TECHNOLOGY AND ENVIRONMENT
Study of the basic concepts of the Natural Sciences, their impact on technological development, on society and on the environment. Application of these concepts to the discussion of current topics. Emphasis on the importance of the scientific method in the search for and construction of knowledge. Prescribed distributive course.

3 credits

GEST 3030 FUNDAMENTALS OF TERRESTRIAL AND ENVIRONMENTAL SCIENCES
Study of the physical environment in which human beings function: describing, observing, evaluating and comparing the processes that structure and mold the surface of the earth. The atmosphere and its processes, climate, composition and structure of the lithosphere, hydrosphere, biosphere, effect of rotation and revolution of the planet and the human being as an agent of change on the earth's surface. Presents an interdisciplinary view of the natural sciences that allows the student to integrate theoretical knowledge framed in human reality. Prescribed distributive course. Requires 30 hours of lecture and 45 hours of lab.

3 credits

Health, Physical Education and Recreation

Three credits are required in this category. Students of the Nursing Program are exempt from this category.

GEHP 3000 WELL-BEING AND QUALITY OF LIFE
Study of the dimensions of well-being and its effect on the physical and neural muscular parameters. Emphasis on the scientific base of knowledge related to physical aptitude, nutrition and other components that contribute to the quality of life. Emphasis on the individual and community responsibility adequate life styles for the conservation and promotion of health and integral well-being. Required course.

3 credits

Undergraduate (Associate and Bachelor) Degree Programs

Accounting (A.A.S. and B.B.A.)

Associate Program

The Associate of Applied Sciences Degree in Accounting offers students the opportunity to develop the fundamental skills and knowledge in the accounting field. It provides the technical preparation that allows Program graduates to perform basic tasks in the accounting field. This program offers the student the opportunity to continue studies leading to the Bachelor's Degree.

Students must pass the required core and major courses with a minimum grade of C.

All campuses are authorized to offer this Program. The Aguadilla, Guayama and Ponce campuses are also authorized to offer this Program through distance learning.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN ACCOUNTING

General Education Requirements		24 credits
Major Requirements		32 credits
Elective Courses		3 credits
	Total	59

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEHS	2010	Historical Process of Puerto Rico	3
GEIC	1010	Information and Computer Literacy	3
GEMA	1200	Fundamentals of Algebra	3

Major Requirements - 32 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
ACCT	2041	Puerto Rico Tax System for Individuals	4
ACCT	2061	Intermediate Accounting I	4
ACCT	2062	Intermediate Accounting II	4
BADM	1900	Fundamentals of Management	3
FINA	2100	Managerial Finance	3
MAEC	2211	Principles of Economics (Micro)	3
MAEC	2221	Basic Statistics	3

Bachelor's Program

The Accounting Program is designed to expose students to the principles, norms and laws in force in the Accounting profession in the United States and Puerto Rico. The student is exposed to the application of theory and practice related to the diverse areas of specialization in the accounting field. Learning experiences are provided with the use of technology and students are encouraged to continue their professional training.

The profession's organization, the ethics and accountants' responsibilities are included in the course of studies. The new trends in doing business require that students have ample knowledge in accounting and other areas such as communications, use of technology, economics, commercial finance and human resources.

The curriculum for the minor in Internal Auditing provides knowledge for evaluation and reporting the activities of an enterprise in relation to its objectives. The concepts, principles and basic practices of internal auditing are presented.

Students must pass the required core and major courses with a minimum grade of C.

All campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN ACCOUNTING

General Education Requirements		48 credits
Core Course Requirements		41 credits
Major Requirements		39 credits
Elective Courses		3 credits
	Total	131

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements - 41 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Communication Workshop in Spanish	
		or	
OMSY	3040	Communication Workshop in English	3

Major Requirements - 39 credits

ACCT	2041	Tax System of Puerto Rico for Individuals	4
ACCT	2042	Tax System of Puerto Rico for Corporations, Partnerships and Other Entities	3
ACCT	2055	Cost Accounting I	4
ACCT	2061	Intermediate Accounting I	4
ACCT	2062	Intermediate Accounting II	4
ACCT	3030	Computerized Systems Applied to Accounting	3
ACCT	3063	Intermediate Accounting III	4
ACCT	2085	Introduction to Federal Taxes for Individuals	3
ACCT	3470	Advanced Accounting	3
ACCT	3460	Accounting for Non Profit Organizations	3
ACCT	4010	Audit and Ethics for Accountants	4

Requirements for students interested in obtaining certification as Authorized Public Accountants - 19 additional credits

Students interested in obtaining certification as Authorized Public Accountants must pass 19 additional credits to comply with the 150 credit hour requirement established by the Accounting Examination Board of Puerto Rico.

The additional courses must be related to communication skills, use of technology, economics, commercial finance, human resources and other courses that contribute to enhance their knowledge of the enterprise environment.

Minor in Accounting

The Minor in Accounting is designed so students may develop techniques to perform basic accounting tasks within their profession or for personal use.

All campuses are authorized to offer this minor.

Requirements for the Minor in Acounting - 24 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
ACCT	2041	Tax System of Puerto Rico for Individuals	3
ACCT	2061	Intermediate Accounting I	4
BADM	1900	Fundamentals of Management	3
GEHS	2020	Global Vision of Economy	
		o	
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2221	Basic Statistics	3

Minor in Internal Auditing

All campuses are authorized to offer this minor.

Requirements for the minor in Internal Auditing - 18 credits

INAU	4093	Fundamentals of Internal Auditing	4
INAU	4094	EDP Auditing	4
INAU	4095	Administering Internal Auditing Functions	3
INAU	4910	Internship in Internal Auditing	4
COMP	2020	Introduction to Computer Organization	3

Airway Sciences (B.S.)

The Baccalaureate in Airway Sciences offers a balance of courses in the areas of science, technology and humanities. Students may choose one of the two majors described below; in addition they may select a minor in Air Traffic Control.

Descriptions of the Majors

1. Aircraft Systems Management (Professional Pilot)

This major is designed to prepare professional pilots with solid background skills in flight theory, meteorology and security. The Program covers the requirements established by the Federal Aviation Administration (FAA) for the preparation of students to obtain certificates for Private Pilot, Single-engine and Multi-engine Commercial Pilot,

the training for Instrument Flight, and the certifications for initial Flying Instructor, Flight Instructor by Instrument and Multi-engine Flight Instructor.

Students are responsible for requesting the examinations necessary to obtain the aforementioned certificates from the FAA. In addition, they are responsible for complying with the FAA regulations, the procedures stipulated by the Aircraft Operations Manual, and the Flight Operations Manual of the School of Aeronautics, at all times in which they are operating an aircraft of the Institution. Failure to comply with the regulations and procedures constitutes a violation to the stipulated security norms and could result in the suspension of the student from the program. Students of the Program may be tested for drug and alcohol use, in agreement with the Federal Aviation Regulations (FAR).

2. Aviation Sciences Management

This major develops the necessary skills for students to occupy managerial or administrative positions with the air transportation industry.

Minor in Air Traffic Control

The minor in Air Traffic Control is offered through a special program of University Training Initiative promoted by the Federal Aviation Administration (FAA). This program offers the student the initial training of the Federal Aviation Administration (FAA) for air traffic control in airports, on-route operations, control tower and others. Once students obtain their bachelor's degree and have completed all the requirements for this minor, they may request admission to the Federal Administration Aviation Academy in the city of Oklahoma. Admission to the minor in air traffic control is limited. Students are selected by means of an interview process where their capability to perform as an Air Traffic Controller is evaluated.

Students interested in being admitted to the minor in air traffic control must meet the following requirements:

1. Be registered in a Bachelor's program in the Bayamón Campus.
2. Complete a Bachelor's Degree in the Bayamón Campus with the following requirements:

    a) Have a minimum academic index of 2.8.
    b) Master the English language orally as well as in writing.
    c) Be interviewed by the evaluation panel of the minor in Air Traffic Control.
    d) Be under 30 years of age when completing the specialization requirements and meeting the job requirements of the FAA.

Specific Admission Requirements for the Major in Aviation Sciences Management

Candidates must:

1. Be high school graduates or the equivalent, with a minimum grade point average of 2.50.
2. Have obtained a minimum of 500 points in the mathematics and English sections of the College Board examination.

Specific Admission Requirements for the Aircraft Systems Management Program (Professionl Pilot)

1. Be high school graduates or the equivalent, with a minimum grade point average of 2.50.
2. Have obtained a minimum of 500 points in the mathematics and English sections of the College Board examination.
3. Show evidence of a first class medical certificate issued by a medical doctor recognized by the Federal Aviation Administration (FAR Part 67).
4. Have an interview with the Head Flight Instructor.

Note: Any student who does not fulfill these specific requirements will be admitted conditionally to the major in Aircraft Systems Management Program (Professionl Pilot) for one academic term.

Admission of Transfer Students

Students from other programs of Inter American University of Puerto Rico or from other recognized universities or colleges may register in the program, if they meet the admission requirements of Inter American University and the Airway Science Programs. They must also have approved the Precalculus course (MATH1500) or its equivalent with a minimum grade of C and be recommended by the Dean of the School of Aeronautics.

Graduation Requirements

In addition to fulfilling the general requirements for graduation, students in Airway Sciences must:

1. Complete all the academic requirements of the selected program.
2. Achieve a minimum grade point average of 2.50 in the major and core courses.
3. Pass General Education English and mathematics courses with a minimum grade of B.
4. For the Major in Aircraft Systems Management, students are required to have obtained certificates issued by the FAA. The certificates are:

    - Private Pilot
    - Instrument Rating
    - Commercial Pilot with Single-engine and Multi-engine Rating
    - Certified Flight Instructor (CFI)
    - Certified Flight Instructor -Instrument (CFII)

NOTE: *The students in this program will take theory and flight courses using the resources provided by the University. These resources include the services that, due to their nature, may be subcontracted.*

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN AIRWAY SCIENCES

General Education Requirements		42 credits
Core Course Requirements		48 credits
Major Requirements		34 credits
	Total	124

General Education Requirements - 42 credits

Forty-two (42) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students of this Program will take the course GEMA 1200 in the Basic Skills in Mathematics category. In the Philosophical and Esthetic category, they will take only three (3) credits in the course GEPE 4040. In the Historical and Social Context category students will only take two courses, one of which will be GEHS 2010.

Students will take the following courses in Spanish and English:

Basic Skills in English	
(GEEN 1201, 1202, 1203 or 2311, 2312, 2313)	9
Basic Skills in Spanish	
(GESP 1101, 1102, 2203	9
(1022 and 2203 will count towards the requirement for non-native speakers)	

Core Course Requirements - 48 credits

AWSC	2000	Introduction to Aeronautics and Space	3
AWSC	2200	Government and Regulations in Aviation	3
AWSC	3600	Flight Safety and Security	3

AWSC	4000	Airport Development and Operations	3
AWSC	4100	Career Development for Aerospace Professionals	1
BADM	1900	Fundamentals of Management	3
ENGL	2075	Technical Literature	3
ENGL	3310	Advanced Oral Communication	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MATH	1500	Pre-Calculus	5
MATH	2251	Calculus I	5
PHYS	3001	General Physics I	4
PSYC	1051	General Psychology I	3

Major Requirements

Aircraft Systems Management (Professional Pilot)

Aircraft Systems Management (Professional Pilot) - 34 credits

AWSC	2115	Private Pilot	5
AWSC	3150	Instrument Rating	4
AWSC	3160	Commercial Pilot	3
AWSC	4305	Aviation Meteorology	3
AWSC	4310	Human Factors for Pilots	3
AWSC	4320	Advanced Aircraft Systems	3
AWSC	4340	Applied Aerodynamics	3
AWSC	4360	Flight Instructor	3
AWSC	4364	Flight Instructor: Instrument	1
AWSC	4373	Multi-engine Instructor	1
AWSC	4384	Training Techniques for Flight Crew (CRM Training)	2

Select three credits from the following:

AWSC	3411	Principles of Air Traffic Control	3
AWSC	4204	Airline Operations	3
AWSC	4400	Theory of Transport Aircraft	3
AWSC	4913	Practicum in Air Agencies Operations	3

Aviation Sciences Management

Aviation Sciences Management - 34 credits

AWSC	4600	Airline Management	3
AWSC	4680	Aviation Strategic Management	3
ACCT	1161	Introduction to Financial Accounting	4
BADM	3330	Human Resource Management	3
BADM	3900	Business Information Systems	3
BADM	4300	Managerial Economics	3
BADM	4800	Operations Management	3
FINA	2100	Managerial Finance	3

Select nine credits from the following:

AWSC	2300	Airline Passanger Services	3
AWSC	4055	Management of Air Cargo	3

AWSC	4650	Foundations of Airline Finance	3
AWSC	4660	Fixed Based Operators Management	3
AWSC	4670	International Commerce and Aviation	3

Minor in Air Traffic Control (Airway Science)

The Bayamón Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN AIR TRAFFIC CONTROL - 24 credits

AWSC	2000	Introduction to Aeronautics and Space	3
AWSC	3000	Aeronautical Language Skills	3
AWSC	3411	Principles of Air Traffic Control	3
AWSC	4305	Aviation Meteorology	3
AWSC	4515	Air Traffic Control I: Tower Operation	4
AWSC	4516	Air TrafficControl II: Radar Operation	4
AWSC	4517	Air Traffic Control III: En-Route and in Terminals	4

Note: This minor may only be taken by students admitted to one of the Airway Science Programs.

Art (B.A.)

The study of the basic principles of art divided into three areas: practice, theory and history. The courses in design, engraving, sculpture, painting, ceramics, drawing and the other graphic arts offer the student the theory of art and practical experience. The courses concerning art history from ancient times to the contemporary period give the student a general overview of the development of the arts. Courses aimed at the use of technology offer students the necessary tools for making graphic design and digital art.

The artistic education courses aim to provide the body of knowledge, skills and attitudes needed by future visual arts teachers to perform as competent and effective professionals in the field of education.

The University offers a four year program to obtain a Bachelor of Arts Degree in the Visual Arts in the following areas: Ceramics and Sculpture; Painting and the Graphic Arts; Photography; and Art Education.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN VISUAL ARTS

For the majors in Ceramics and Sculpture, Painting and Graphic Arts, and in Photography

General Education Requirements		48 credits
Core Course Requirements		36 credits
Major Requirements		21 credits
Elective Courses		9 credits
	Total	114

For the major in Art Education

General Education Requirements		51 credits
Core Course Requirements		39 credits
Major Requirements		46 credits
Elective Courses		6 credits
	Total	142

General Education Requirements - 48 or 51 credits

For the majors in Ceramics and Sculpture; Painting and the Graphic Arts; and Photography:

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees."

For the major in Art Education:

Fifty-one (51) credits are required in General Education. In addition to course GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

Core Course Requirements - 36 or 39 credits

ARTS	1100	Color Theory*	3
ARTS	1103	Technical Foundations and Practice in Drawing	3
ARTS	1104	Design	3
ARTS	1300	Pottery I	4
ARTS	1400	Basic Photography	3
ARTS	2140	Drawing I	4
ARTS	2250	Painting I	4
ARTS	2260	Sculpture I	3
ARTS	2355	Introduction to the Graphic Arts	3
ARTS	2403	History of Art	3
ARTS	3403	History of Modern and Contemporary Art	3
ARTS	3405	History of Puerto Rican Art	3

Note: *Required only of students in Art Education.

Majors (at least one of the following is required):

Ceramics and Sculpture

Ceramics and Sculpture - 21 credits

Required courses - 9 credits

ARTS	2300	Pottery II	3
ARTS	3250	Sculpture II	3
ARTS	4253	Sculpture III	
		or	
ARTS	4303	Clays and Glazes	3

Four courses from the following - 12 credits

ARTS	1100	Color Theory	3
ARTS	2100	Designs in Native Materials	3
ARTS	2105	Designs in Manufactured Materials	3
ARTS	2700	Multiple Techniques	3
ARTS	3105	Metal Jewelry	3
ARTS	3150	Drawing II - Figure	3
ARTS	3303	Ceramics III	3
ARTS	3351	Serigraphy I	3
ARTS	4202	Airbrush	3

ARTS	4254	Metal Sculpture	3
ARTS	4256	Human Sculpture	3
ARTS	4303	Clays and Glazes	3
ARTS	4352	Layout Design	3
ARTS	4360	Digital Art	3
ARTS	4365	Computerized Graphic Design	3

Painting and the Graphic Arts

Painting and the Graphic Arts - 24 credits

Required Courses - 12 credits

ARTS	1100	Color Theory	3
ARTS	3150	Drawing II - Figure	3
ARTS	3210	Painting II	3

Four courses from the following - 12 credits

ARTS	2700	Multiple Techniques	3
ARTS	3351	Serigraphy I	3
ARTS	3352	Serigraphy II	3
ARTS	3355	Linoleum and Wood Engraving Techniques	3
ARTS	3400	Photography III	3
ARTS	3450	Color Photography	3
ARTS	4100	Watercolor	3
ARTS	4150	Advanced Drawing	3
ARTS	4202	Airbrush	3
ARTS	4210	Mural Painting	3
ARTS	4255	Painting III	3
ARTS	4256	Human Sculpture	3
ARTS	4350	Intaglio Techniques	3
ARTS	4352	Layout Design	3
ARTS	4353	Lithography	3
ARTS	4355	Photo serigraphy	3
ARTS	4360	Digital Art	3
ARTS	4365	Computerized Graphic Design	3
ARTS	4500	Stage Design	3

Photography

Photography - 21 credits

Required Courses - 9 credits

ARTS	3150	Drawing II-Figure	3
ARTS	3400	Photography III	3
ARTS	4453	Specialized Photography	3

Four courses from the following:

ARTS	1100	Color Theory	3
ARTS	2700	Multiple Techniques	3
ARTS	3351	Serigraphy I	3
ARTS	3450	Color Photography	3

ARTS	4150	Advanced Drawing	3
ARTS	4202	Airbrush	3
ARTS	4352	Layout Design	3
ARTS	4353	Lithography	3
ARTS	4355	Photo serigraphy	3
ARTS	4360	Digital Art	3
ARTS	4365	Computerized Graphic Design	3
ARTS	4500	Stage Design	3

Art Education (Visual Arts)

Art Education - 48 credits

PROFESSIONAL COURSES IN ART EDUCATION

I. Foundation

EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	4
EDUC	2870	The Exceptional Student Population	2
EDUC	3013	Learning Strategies	2
EDUC	4011	Evaluation and Assessment	2
EDUC	4012	Classroom Research	3
EDUC	4050	Curriculum Design	3
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	History of the United States	3

II. Processes and Technology

ARED	1080	Field Experiences in Art Education I	1
ARED	1900	Fundamentals of Art Education	3
ARED	2080	Field Experiences in Art Education II	2
ARED	3750	Educational Technology in Art Education	2
ARED	3850	Methods in Art Education in the Elementary School	2
ARED	3851	Methods in Art Education in the Secondary School	2

Clinical Experience

ARED	3080	Clinical Experiences in Art Education I	2
ARED	4913	Clinical Experiences in Art Education II	4

REQUIREMENTS OF THE TEACHER EDUCATION PROGRAM FOR STUDENTS SEEKING THE BACHELOR OF ARTS DEGREE WITH SPECIALIZATION IN ART EDUCATION

1. Admission Requirements for the Major in Art Education

Meet the admission requirements for the Teacher Education Program

II. Student Teaching

To be admitted to Practice Teaching (ARED 4913) students must:

1. Have completed all the credits required by the Program.

2. Have approved the number of credits established for each major.
3. Have a minimum grade point index of 2.50 in the major, in the professional studies and in the general grade point index.
4. Have filed a formal application with the approval of the Division or the Education Department.

Public as well as private schools serve as laboratories for students to acquire experience in the teaching and learning field.

III. Other Provisions

Students who have had previous satisfactory teaching experience may be exempt from the teaching internship if they request it. This exemption will be subject to the following conditions:

1. The student has been teaching full time for two academic years within the last four years, in a school accredited by the Puerto Rico Department of Education.
2. The experience to be credited by the University corresponds to the requirements for the degree that the student hopes to obtain from the Institution.
3. The student pays 50% of the registration cost of the Practice Teaching course (6 credits) for the final validation of the credits.

IV. Satisfactory Academic Progress Requirements

1. Pass the required ARED courses with a minimum grade of C:
2. Meet the retention requirements of the Teacher Education Program.

Graduation Requirements

Meet the graduation requirements of the Teacher Education Program.

Public as well as private schools serve as laboratories for students to acquire experience in the teaching and learning field.

Audiovisual Communications Technology (A.A.S.)

The Associate of Applied Science Degree Program in Audiovisual Communication Technology aims to provide preparation in the field of Educational Technology. The program will prepare students in the use of concepts and tools to work in the application and development of instructional materials. In addition, it will provide the base to continue studies leading to the Bachelor of Science Degree in Communication in Media Production.

Admission Requirements

All students interested in this program must meet the admission requirements appearing in the General Catalog. In addition, they must have a minimum high school grade point index of 2.50. Students who initially do not meet the minimum requirements may be admitted to the program if, upon completion of their first year of studies (24 credits), they obtain a minimum grade point index of 2.50.

Transfer students must have a minimum grade point index of 2.50 at their university of origin to be admitted to the program.

Academic Progress Requirements

Student must pass the courses required for the major with the minimum grade of C. In order to take continuation and advanced courses, they must have passed the prerequisites of these courses.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN AUDIOVISUAL COMMUNICATION TECHNOLOGY

General Education Requirements		24 credits
Major Requirements		34 credits
	Total	58

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 34 credits

COMU	1005	Introduction to Educational Technology	3
COMU	1025	Introduction to Graphic Production	3
COMU	1031	Photographic Techniques	3
COMU	1060	Administration of Educational Technology Centers	3
COMU	2121	Media Writing I	3
COMU	2130	Media Planning	3
COMU	2223	Sound Production Techniques	3
COMU	2340	Television Production Techniques	3
COMU	2511	Computer Graphic Production	3
COMU	2910	Supervised Practice	4
CMIS	2450	Introduction to Internet in the Enterprise	3

Auditing (B.B.A.)

The course of studies is designed to offer students knowledge in accounting and the analytical skills required in auditing. The Program exposes students to the knowledge and skills needed to perform the functions of both internal and external auditing. These functions include the auditing of accounts, audits to gauge the efficiency and effectiveness of the entity as well as its compliance of established laws, rules and policies.

The Program has as its goal the development of analytical and technical skills required of auditors, to exalt their image of professionalism and integrity and present the field of auditing as an alternative for new professionals.

Students must pass the required core and major courses with a minimum grade of C.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN AUDITING

General Education Requirements		48 credits
Core Course Requirements		41 credits
Major Requirements		39 credits
Elective Courses		3 credits
	Total	131

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements - 41 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Communication Workshop in Spanish	
		or	
OMSY	3040	Communication Workshop in English	3

Major Requirements - 39 credits

AUDI	2195	Governmental Regulations of Business	3
AUDI	3091	Fundamentals of Internal Auditing	4
AUDI	3092	Internal Auditing Administration	3
AUDI	3190	Auditing of Information Systems	4
AUDI	4194	Report Writing in Auditing	3
AUDI	4195	Investigation of Fraud	3
ACCT	2061	Intermediate Accounting I	4
ACCT	2062	Intermediate Accounting II	4
ACCT	3063	Intermediate Accounting III	4
ACCT	3460	Accounting for Non Profit Organizations	3
ACCT	4010	Auditing and Ethics for Accountants	4

Bioinformatics (B.S.)

The Bioinformatics Program is interdisciplinary and is designed to provide students with the practical and theoretical knowledge that will allow them to use computer techniques in the study of biological, molecular and health related sciences. The Program will foster the development of basic laboratory skills, scientific reasoning, and computer skills that will train students to work in computational biology professions, biotechnology, and medical informatics, or to continue graduate studies.

To be admitted in the Bachelor of Science Program in Bioinformatics the applicant must have received 500 points or more in the results of the College Entrance Examination Board examination.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN BIOINFORMATICS

General Education Requirements		48 credits
Major Requirements		83 credits
Prescribed Distributive Requirements		6 credits
Elective Courses		6 credits
	Total	143

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students who have obtained a score equal to or greater than 550 in the area of mathematical achievement in the "College Entrance Examination Board" test are exempt from taking GEMA 1200.

Major Requirements - 83 credits

BIIN	3010	Computational Biology	3
BIOL	1101, 1102	Modern Biology I, II	6
BIOL	1103, 2013	Skills Laboratory I, II	2
BIOL	2155	Genetics	3
BIOL	4403	Evolution	3
BIOL	4604	Cellular and Molecular Biology	3
BIOL	4605	Skills Laboratory III	2
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221, 2222	Organic Chemistry I, II	8
COMP	2110	Introduction to Computer Science	3
COMP	2120	Programming Logic	3
COMP	2310	Visual Programming	3
COMP	2315	Structured Programming	3
COMP	2400	Object Oriented Programming	3
COMP	2501	Discrete Computational Structures I	3
COMP	2900	Data Structures	3
COMP	3850	Theory of Databanks	3
MATH	1500	Precalculus	5
MATH	2100	Introduction to Probability and Statistics	3
MATH	2251	Calculus	5
PHYS	3001, 3002	General Physics I, II	8

Prescribed Distributive Requirements - 6 credits

Six additional credits from BIOL or COMP 3000 or 4000 level courses or the course BIIN 3020.

Biology (B.S.)

The Program for the Bachelor of Science Degree in Biology prepares professionals with the knowledge derived from the integration of studies of the biological, chemical, physical and mathematical processes so they may be capable of interpreting natural world phenomena. The Program gives emphasis to the molecular base of biological processes. It promotes the development of laboratory skills by means of the application of the scientific method using emergent technology. It enables them to meet the employment demand, as well as postgraduate and professional studies.

All campuses are authorized to offer this Program. In addition, the Fajardo Campus is authorized to offer 50 percent of the courses online.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN BIOLOGY

General Education Requirements		45 credits
Major Requirements		65 credits
Prescribed Distributive Requirements in Major		12 credits
Elective Courses		3 credits
	Total	125

General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students are exempt from taking courses in the Scientific and Technological Context category.

Major Requirements - 65 credits

BIOL	1101, 1102	Modern Biology I, II	6
BIOL	1103	Skills Laboratory I	1
BIOL	2013	Skills Laboratory II	1
BIOL	2103	Zoology	3
BIOL	2104	Botany	3
BIOL	2153	Biostatistics	3
BIOL	2155	Genetics	3
BIOL	3105	General Microbiology	4
BIOL	3106	Anatomy and Human Physiology	4
BIOL	3503	Ecology	3
BIOL	4604	Cellular and Molecular Biology	3
BIOL	4605	Skills Laboratory III	2
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221, 2222	Organic Chemistry I, II	8
MATH	1500	Precalculus	5
PHYS	3001, 3002	General Physics I, II	8

Prescribed Distributive Requirements - 12 credits

Students will select 12 credits from the following courses:

BIOL	2800	Introduction to Astrobiology	3
BIOL	3213	Parasitology	3
BIOL	3214	Entomology	3
BIOL	3216	Animal Behavior	3
BIOL	3219	Biology of the Invertebrates	3
BIOL	3309	Food Microbiology	3
BIOL	3405	Immunology	3
BIOL	3504	Environmental Health	3
BIOL	3505	Environmental Laws, Policies and Regulations	3
BIOL	3904	Toxicology	3
BIOL	4105	Fundamentals of Geographic Information Systems (GIS)	3
BIOL	4109	General Physiology	3
BIOL	4303	Mycology	3
BIOL	4304	Medical Mycology	3
BIOL	4305	Medical Microbiology	3
BIOL	4306	Virology	3
BIOL	4307	Microtechniques	2
BIOL	4403	Evolution	3
BIOL	4405	Embryology	3
BIOL	4407	Human Anatomy	3
BIOL	4433	Industrial Microbiology	3
BIOL	4494	Pharmacology	3
BIOL	4503	Conservation and Management of Natural Resources	3
BIOL	4600	Histology	3
BIOL	4905	Pathology	3
BIOL	4909	Public Health	3

BIOL	4912	Practicum in Biology	3
BIOL	4953	Research Methods	3
BIOL	4955	Integrating Seminar	1
BIOL	4960	Bioethics	3
MATH	2250	Calculus for Biology and Environmental Sciences	3
MATH	2251	Calculus I	5

Minor in Marine Science

The Bayamón Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN MARINE SCIENCE - 18 credits

Students will be able to opt for a minor in Marine Sciences by taking the 18 credits indicated for it. In order to complete the minor they must pass the following courses:

BIOL	2600	Foundatios of Oceanology	3
BIOL	3630	Marine Science Diving	3
BIOL	3640	Nautical Science	2
BIOL	4000	Marine Biology	4
BIOL	4931	Marine Research I	3
BIOL	4932	Marine Research II	3

Biomedical Sciences (B.S.)

The Bachelor of Science Program in Biomedical Sciences is designed to develop students' understanding of modern concepts of Biomedical Sciences to familiarize them with the development of basic laboratory skills, teach them to solve scientific problems that will enable them to solve problems in our society, and face the demand for employment or postgraduate studies. It will enable them to take entrance examinations to biomedical sciences schools at the professional or graduated level, to use critical thinking to evaluate consequences and to discern between actions that promote maintenance of quality of life by means of individual and collective health care, and make informed decisions on health issues within a framework of ethical-moral values. The Program is directed to people interested in continuing graduate and professional studies in areas such as Biomedical Sciences, Medicine, Dentistry, Optometry, Public Health and allied Health Sciences. In addition, students can work in the pharmaceutical industry.

Students of this Program must pass all Biomedical Sciences courses and the course MATH 1200 with a minimum grade of C.

Admission Requirements

In addition to the admission requirements established in this Catalog, candidates desiring to enter this Program must:

1. Have a minimum high school grade point average of 2.50.
2. Pass an interview with the Program Coordinator and the Academic Director of the Sciences and Technology Department. In the Metropolitan Campus the interview will be conducted when necessary.

The Metropolitan and Ponce campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN BIOMEDICAL SCIENCES

General Education Requirements		45 credits
Major Requirements		56 credits
Prescribed Distributive Requirements		12 credits
Elective Courses		6 credits
	Total	119

General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the section "General Education Requirements for of Bachelors' Degrees." Students of this Program are exempt from taking courses in the Scientific and Technological Context category. Students of this Program will take GEMA 1200 in the Basic Skills in Mathematics category.

Major Requirements - 56 credits

BMSC	2210	Human Genetics	3
BMSC	3011	Anatomy and Human Physiology I	3
BMSC	3012	Anatomy and Human Physiology II	3
BMSC	4015	Biochemistry of Human Physiology	3
BMSC	4020	Biomedical Ethics	3
BIOL	1101	Modern Biology I	3
BIOL	1102	Modern Biology II	3
BIOL	1103	Skills Laboratory I	1
BIOL	2013	Skills Laboratory II	1
BIOL	3105	General Microbiology	4
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221	Organic Chemistry I	4
CHEM	2222	Organic Chemistry II	4
MATH	1500	Precalculus	5
PHYS	3001	Physical General I	4
PHYS	3002	Physical General II	4

Prescribed Distributive Requirements - 12 credits

Twelve (12) credits from the following courses:

BIOL	2153	Biostatistics	3
BIOL	3405	Immunology	3
BIOL	4305	Medical Microbiology	3
BIOL	4405	Embryology	3
BIOL	4494	Pharmacology	3
*BIOL	4604	Cellular and Molecular Biology	3
BIOL	4905	Pathology	3
CHEM	3320	Analytical Chemistry	4
ENGL	2076	Reading and Writing in Technical Texts	3
ENGL	3030	Technical-Scientific Writing in Sciences	3
MATH	2251	Calculus I	5

*Students from the Ponce Campus must include BIOL 4604 among the courses selected to complete the twelve (12) Prescribed Distributive required credits.

Biotechnology (B.S.)

The Bachelor of Science in Biotechnology is an interdisciplinary program providing the laboratory skills and knowledge to perform genetic recombination techniques, protein purification and cellular culture. Knowledge of cellular and molecular biology, industrial processes and the regulatory provisions of the regulating agencies will be developed. Graduates of the Biotechnology program will be prepared to work in positions in industry, research or to continue graduate studies.

In order to fulfill the graduation requirements for the Bachelor of Science degree in Biotechnology, students must:

1. Obtain a minimum grade index of 2.50 in the major.
2. Obtain a minimum grade of C in the Biotechnology courses (BIOT) that are part of the Major Requirements.

The Aguadilla, Arecibo, Barranquitas, Bayamón, Guayama and Ponce campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN BIOTECHNOLOGY

General Education Requirements		48 credits
Major Requirements		81 credits
Elective Courses		6 credits
	Total	135

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students who have obtained a score equal to or greater than 550 in the area of mathematical achievement in the "College Entrance Examination Board" test are exempt from taking GEMA 1200.

Major Requirements - 85 credits

BIOT	3250	Molecular Biotechnology	3
BIOT	3750	Recombinant DNA Technology	3
BIOT	4620	Tissue Culture and Technical Applications	3
BIOT	4801	Operational Biotechnology I	2
BIOT	4802	Operational Biotechnology II	2
BIOT	4928	Protein Purification and Analysis	3
BIOL	1101	Modern Biology I	3
BIOL	1102	Modern Biology II	3
BIOL	1103	Skills Laboratory I	1
BIOL	2013	Skills Laboratory II	1
BIOL	2153	Biostatistics	3
BIOL	2155	Genetics	3
BIOL	3105	General Microbiology	4
BIOL	3405	Immunology	3
BIOL	4433	Industrial Microbiology	3
BIOL	4604	Cellular and Molecular Biology	3
BIOL	4605	Skills Laboratory III	2
BIOL	4953	Research Methods	3
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221, 2222	Organic Chemistry I, II	8
CHEM	3320	Analytical Chemistry	4
CHEM	4220	Biochemistry	4
MATH	1500	Precalculus	5
PHYS	3001, 3002	General Physics I, II	8

Minor in Biotechnology

The Aguadilla, Arecibo, Barranquitas, Bayamón, Guayama and Ponce campuses are authorized to offer this minor.

Requirements - 19 credits

BIOT	3250	Molecular Biotechnology	3
BIOT	3750	Recombinant DNA Technology	3
BIOT	4801	Operational Biotechnology I	2
BIOT	4802	Operational Biotechnology II	2
BIOT	4928	Protein Purification and Analysis	3
BIOL	3405	Immunology	3
BIOL	4433	Industrial Microbiology	3

Business Administration (A.A.S.)

Associate Program

The Associate of Applied Sciences Degree in Business Administration offers the student the opportunity to develop the basic skills and knowledge in the area of business administration and enterprise development. The Program offers the student the opportunity to continue studies leading to the Bachelor's degree in Business Administration.

The student must pass the courses required in the major with the minimum grade of C.

All campuses are authorized to offer this Program. The Aguadilla and Ponce campuses are also authorized to offer this Program through distance learning. Students must pass all courses required in the major with a minimum grade of C.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN BUSINESS ADMINISTRATION

General Education Requirements		24 credits
Major Requirements		32 credits
	Total	56

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEHS	2010	Historical Process of Puerto Rico	3
GEIC	1010	Information and Computer Literacy	3
GEMA	1200	Fundamentals of Algebra	3

Major Requirements - 32 credits

ACCT	1161	Introduction to Financial Accounting	8
ACCT	1162	Introduction to Accounting I, II	8
BADM	1900	Fundamentals of Management	3
BADM	3900	Business Information Systems	3
ENTR	2200	Fundamentals of Entrepreneurship	3
FINA	2100	Managerial Finance	3
MAEC	2211	Principles of Economics (Micro)	3
MAEC	2221	Basic Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Business Communication Workshop in Spanish	3
		or	
OMSY	3040	Business Communication Workshop in English	3

Cardio-Respiratory Care (A.A.S and B.S.)

The Cardio-Respiratory Care Program has as its main goal the preparation of technicians and professionals in the area of cardio-respiratory care at the associate and/or bachelor degree levels. Through this Program the student will obtain the knowledge and skills necessary to provide comprehensive and high quality care to clients, relatives and community in different scenarios. The program aims to:

1. Prepare a respiratory therapist with the knowledge and skills necessary to offer cardio-respiratory care in harmony with the exigencies of Law #24, which regulates respiratory care practice in Puerto Rico.
2. Contribute to the support and maintenance of the integral health of the community served.
3. Offer excellent care based on legal and ethical-moral values.

In order to encourage the development of this professional person diverse and flexible modalities of study are offered. This facilitates the advance from the associate degree to Bachelor's Degree.

It is expected that students who decide to exit the program to work as Associate Degree therapists in Cardio-Respiratory Care will be able to:

1. Develop and implement cardio-respiratory care to support, maintain and restore the respiratory health of patients with cardiopulmonary problems.
2. Use established communication channels to administer respiratory therapy to patients in acute or critical condition according to the life cycle.
3. Collaborate with other members of the health team to assist in the diagnosis, treatment, evaluation, control, rehabilitation and prevention in patients in order to offer quality care.
4. Consider research findings in the respiratory field to justify the interventions.
5. Have the knowledge and minimum skills to perform their role effectively when offering care to patients.
6. Develop skills to handle the technological equipment when offering cardio-respiratory care in any scenario where they may offer their services.
7. Comply with the provisions of the laws that regulate their practice and with the code of ethics to uphold the standards of honesty.

It is expected that students who decide to finish the Baccalaureate program to work in Cardio-Respiratory Care will:

1. Develop and implement specialized cardio-respiratory care to support, maintain and restore the respiratory health of patients, families and communities.
2. Use established communication channels to modify cardio-respiratory care in patients of different ages.
3. Apply the research process to identify problems affecting the cardio-respiratory field in order to improve the practice.
4. Assume a role as leader in order to establish effective strategies for offering quality cardio-respiratory care.
5. Use improvement and administration strategies to coordinate the services of the department.

The requirements of the major are offered throughout a four - year program with an option to exit after completing the requirements of the first two years. This innovating design articulates both levels of preparation (Associate and Baccalaureate in Cardio-Respiratory care).

Admission Requirements

1. Comply with all admission norms established in the General Catalog
2. To be a candidate for admission to the Program, students must:
   a. have a minimum average of 2.50
   b. have an interview with the Director of the Program or with a representative delegated by the Director.
3. To be a candidate for admission at the third level (courses of the third year) for the Bachelor's Degree in Respiratory Therapy, students must:
   a. have satisfactorily completed the requirements of the first two years of the Bachelor's Degree in Cardio-Respiratory Care.

b. present evidence of having an Associate Degree in of Cardio-Respiratory care from a recognized and accredited higher education institution. Candidates having an associate degree must complete any general education requirement established by the institution and the campus to receive the degree.

Note: To be admitted to a clinical practice agency, students are required to present:

1. A negative criminal record recently issued by the Police of Puerto Rico.
2. A current health certificate issued by the Department of Health.
3. Evidence of vaccination against Hepatitis B.

Some agencies and courses have additional requirements. Students are responsible for meeting any other requirement that may be required by the practice agency. Among these are: current CPR Certificate, Negative Doping Test, Culture of Nose and Throat, among others.

Internal and External Transfer Requirements

1. Meet all admission norms for transfer students established in the General Catalog and those of the corresponding campus.
2. Admission to the Program or to take courses of the major in combined registration for students of another campus of this University requires the previous authorization of both program directors.

Requirements

To complete the Bachelor of Science Degree in Cardio-Respiratory Care, students must:

1. Meet the graduation requirements established in the General Catalog of the University.
2. Obtain a minimum final general average of 2.50.
3. Obtain a minimum final average of 2.50 in the major.

The Guayama Campus is authorized to offer this Program.

Associate Program

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN CARDIO-RESPIRATORY CARE

General Education Requirements		24 credits
Major Requirements		53 credits
	Total	77

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 53 credits

CARD	1210	Introduction to Theory and Practice in Cardio-Respiratory Care	3
CARD	1220	Pharmacology Applied to Cardio-Respiratory Care	2
CARD	2110	Cardio-Respiratory Pathophysiology I	3
CARD	2120	Diagnosis Tests and Pulmonary Function	2

CARD	2130	Cardio-Respiratory Care I	3
CARD	2223	Mechanical Ventilation	5
CARD	2111	Cardio-Respiratory Pathophysiology II	3
CARD	2131	Cardio-Respiratory Care II	3
CARD	2140	Cardio-Respiratory Care and Rehabilitation	3
CARD	2190	Preparation for Local and National Board Exams	2
CARD	2910	Integrated Practice I	4
BIOL	1003	Basic Concepts of Biology	3
BIOL	2151	Human Anatomy and Physiology I	3
BIOL	2152	Human Anatomy and Physiology II	3
BIOL	2154	Foundations of Microbiology	3
CHEM	2110	General Chemistry for Health Science	4
PHYS	1013	General Physics and its Applications	4

Bachelor's Program

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN CARDIO-RESPIRATORY CARE

General Education Requirements		45 credits
Major Requirements		76 credits
Elective Courses		6 credits
	Total	127

General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students of this Program are exempt from taking course GEHP 3000 from the category of Health, Physical Education and Recreation.

Major Requirements - 76 credits

CARD	1210	Introduction to Theory and Practice in Cardio-Respiratory Care	3
CARD	1220	Pharmacology Applied to Cardio-Respiratory Care	2
CARD	2110	Cardio-Respiratory Pathophysiology I	3
CARD	2111	Cardio-Respiratory Pathophysiology II	3
CARD	2120	Diagnosis Tests and Pulmonary Function	2
CARD	2130	Cardio-Respiratory Care I	3
CARD	2131	Cardio-Respiratory Care II	3
CARD	2140	Cardio-Respiratory Care and Rehabilitation	3
CARD	2190	Preparation for Local and National Board Exams	2
CARD	2223	Mechanical Ventilation	5
CARD	2910	Integrated Practice I	4
CARD	3120	Principles of Research in Cardio-Respiratory Care	2
CARD	3130	Advanced Measures of Cardiopulmonary Resuscitation	4
CARD	3230	Leadership and Administration in Cardio-Respiratory Care	3
CARD	4910	Integrated Practice II	4
CARD	4920	Cardio-Respiratory Care in Neonatology and Pediatrics	4
CARD	4930	Advanced Cardio-Respiratory Care	4
CARD	4970	Seminar	2
BIOL	1003	Basic Concepts of Biology	3
BIOL	2151	Human Anatomy and Physiology I	3
BIOL	2152	Human Anatomy and Physiology II	3
BIOL	2154	Foundations of Microbiology	3
CHEM	2110	General Chemistry for Health Science	4
PHYS	1013	General Physics and its Applications	4

Chemical Technology (B.S.)

The Chemical Technology Program has been designed for the purpose of developing the cognitive and psychomotor skills necessary for the student to perform satisfactorily as a chemical technician in chemical and pharmaceutical industries. The Program also aims to expand the interaction and participation of industry initiated by offering the Associate Degree in Chemical Technology.

The Arecibo and Guayama campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN CHEMICAL TECHNOLOGY

General Education Requirements		48 credits
Major Requirements		67 credits
Elective Courses		12 credits
	Total	127

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category.

Major Requirements – 67 credits

CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221, 2222	Organic Chemistry I, II	8
CHEM	3015	Environmental Analytical Chemistry	4
CHEM	3320	Analytical Chemistry	4
CHEM	3330	Computations and Chemical Applications	3
CHEM	3350	Pharmaceutical Chemistry	3
CHEM	3351	Pharmaceutical Chemistry Laboratory	1
CHEM	4003	Industrial Chemistry	3
CHEM	4160	Industrial Chemical Analysis	5
CHEM	4913	Internship in Chemical Technology	3
BIOL	1003	Basic Biological Concepts	3
		or	
BIOL	1101	Modern Biology I	3
BIOL	1103	Skills Laboratory I	1
INRE	2063	Industrial Safety and Occupational Health	3
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
PHYS	3001, 3002	General Physics I, II	8

Chemistry (B.S.)

The program in chemistry is designed to facilitate the acquisition and development of knowledge, skills and attitudes in the field of chemistry that will enable students to achieve their professional goals, improve their understanding of nature and contribute to the development of society.

The Program responds to the advancements in the cognitive sciences and incorporates new technology into the teaching-learning process. In addition, it foments scientific curiosity and the search for knowledge leading to students' intellectual and professional development.

The Program offers the Bachelor of Science Degree in Chemistry and is designed for students planning to work as chemists in industry or government or to take graduate studies in chemistry, or in any other branch of science.

The Arecibo, Metropolitan and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN CHEMISTRY

General Education Requirements	45 credits
Major Requirements	70 credits
Prescribed Distributive Requirements	6 or 7 credits
Elective Courses	3 credits
Total	124 or 125

General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students of this Program are exempt from taking the course GEST 2020 or3030 in the Scientific and Technology Context category.

Major Requirements - 70 credits

CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221, 2222	Organic Chemistry I, II	8
CHEM	3230	Structure Determination by Spectroscopic Methods	3
CHEM	3320	Analytical Chemistry	4
CHEM	3330	Computation and Chemical Applications	3
CHEM	3910	Physical Chemistry: Thermodynamics	4
CHEM	3920	Physical Chemistry: Quantum and Kinetics	4
CHEM	4240	Instrumental Analytical Chemistry	5
CHEM	4200	Advanced Inorganic Chemistry	3
CHEM	4965	Senior Seminar	3
BIOL	1101	Modern Biology I	3
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
PHYS	3001, 3002	General Physics I, II	8

Prescribed Distributive Requirements – 6 or 7 credits

A minimum of six (6) credits from the following courses is required:

CHEM	3360	Food Chemistry	3
CHEM	3370	Green Chemistry	3
CHEM	3380	Introduction to Nanotecnología	3
CHEM	3390	Biotechnology for Chemists	3
CHEM	397 _	Special Topics	3
CHEM	4220	Biochemistry	4

Minor in Chemistry

The Arecibo, Metropolitan and San Germán campuses are authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN CHEMISTRY - 24 credits

In order to certify a minor in chemistry students must have a minimum total of twenty-four (24) credits from the chemistry curriculum (courses CHEM) of which, they must have a minimum of nine (9) credits from 3000 or 4000 level courses.

It is the responsibility of the student to meet the course requirements for the minor.

Communications (B.A.)

The Bachelor of Arts Program in Communications aims to provide a theoretical and practical preparation in the areas of public relations, advertising and journalism that includes the knowledge and management of communication media. It also aims to develop administrative, research and technical skills in communications. The Program has been designed with a multi-disciplinary curriculum content that propitiates the preparation of professionals able to compete in the employment market or for self-employment. To complete the requirements for the Bachelor of Arts Degree in Communications, students must:

1. Obtain a general academic index of 2.30 or more.
2. Obtain an academic index of 2.50 or more in the major courses including the specialization courses.

The Ponce Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN COMMUNICATIONS

General Education Requirements		48 credits
Major Requirements		27 credits
Prescribed Distributive Requirements		9 credits
Specialization Requirements		21 credits
Elective Courses		9 credits
	Total	114

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." For the Specialization in Public Relations and Advertising, students will take the nine credits in English Communication Skills in the sequences GEEN 1201, 1202, 2203 or 2311, 2312, 2313.

Major Requirements - 27 credits

COMU	1000	Introduction to Communications	3
COMU	1010	Foundations of Graphic Communications	3
COMU	2010	Writing for Communication Media	3
COMU	3000	Research Processes in Communications	3
COMU	4320	Legal and Ethical Aspects	3
COMU	4410	Management for Communication Media	3
COMU	4920	Internship	6
SPAN	3015	Oral Communication	3

Prescribed Distributive Requirements - 9 credits

Select nine credits from the following courses

COMU	2000	Fundamentals of Journalism	3
COMU	2040	Introduction to the Analysis of Journalistic Texts	3
COMU	3020	Interpersonal Communication: Techniques and Style	3
BADM	1900	Fundamentals of Management	3
ENGL	3310	Advanced Oral Communication	3
SOCI	2020	Social Structures and Social Change	3
SOCI	3753	Social Problems of Puerto Rico	3

Specialization Requirements - 21 credits

Students are required to take the following specialization:

Public Relations and Advertising (Communications)

Public Relations and Advertising - 21 credits

COMU	2030	Foundations of Public Relations and Advertising	3
COMU	3013	Public Relations Plan	3
COMU	3015	Advertising Projects	3
COMU	3021	Radio and Television Production	3
COMU	4973	Seminar in Public Relations and Advertising	3
MKTG	1210	Introduction to Marketing	3
POLS	4055	Public Opinion and Propaganda	3

Communication in Media Production (B.S.)

The Bachelor of Science Degree in Communication in Media Production provides a theoretical and practice preparation in production for the media. The areas of the media that are included are: writing, photography, graphic design, sound and video. The program has an interdisciplinary emphasis in which students work the five areas in a media integrated environment in agreement with the trends in the Communication industry.

Students will take 12 credits in one of the submajors appearing in the academic offerings. These submajors permit the expansion of techniques and knowledge in the students' area of interest.

Admission Requirements

All students interested in this program must meet the admission requirements appearing in the General Catalog. In addition, they must have a minimum high school grade point index of 2.50. Students who initially do not meet the minimum requirements may be admitted to the program if, upon completion of their first year of studies (24 credits), they obtain a minimum grade point index of 2.50.

Transfer students must have a minimum grade point index of 2.50 at their university of origin to be admitted to the program.

Retention Requirements

Student must pass the courses required for the major with the minimum grade of C. In order to take continuation and advanced courses, they must have passed the prerequisites of these courses.

Graduation Requirements

Students must fulfill the general graduation requirements and achieve a minimum general grade point index of 2.50.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN COMMUNICATION IN MEDIA PRODUCTION

General Education Requirements		48 credits
Major Requirements		60 credits
Submajor Requirements		12 credits
Elective Courses		6 credits
	Total	126

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees."

Major Requirements - 60 credits

COMU	1020	Introduction to Communication Media	3
COMU	1025	Introduction to Graphic Production	3
COMU	1031	Photographic Techniques	3
COMU	2121	Media Writing I	3
COMU	2122	Media Writing II	3
COMU	2130	Planning for Media	3
COMU	2223	Sound Production Techniques	3
COMU	2340	Television Production Techniques	3
COMU	2511	Computer Graphic Production I	3
COMU	2521	Voice and Diction	3
COMU	2611	Radio Production I	3
COMU	3040	Television Field Production	4
COMU	3520	Advanced Television Production	4
COMU	4320	Legal and Ethical Aspects	3
COMU	4410	Media Management	3
COMU	4444	Fundamentals of Media Research	3
COMU	4910	Supervised Practice	4
ENGL	2054	Speech Workshop	3
MAEC	2221	Basic Statistics	3

Submajor Requirements – 12 credits

Twelve (12) credits are required in one of the following submajors:

Writing for the Media

COMU	3341	Journalism Techniques and Structure I	3
COMU	3342	Journalism Techniques and Structure II	3
COMU	3355	Media Interviews	3
COMU	3410	News Production for Electronic Media	3

Graphic Design

COMU	2512	Computer Graphic Production II	3
COMU	2621	Digital Photography I	3
COMU	2622	Digital Photography II	3
COMU	3130	Publicity Graphic Design	3

Photography

COMU	1032	Advanced Photography	3
COMU	2610	Theory and Techniques of Illumination in Photography	3
COMU	2621	Digital Photography I	3
COMU	3325	Photojournalism	3

Radio Production

COMU	2522	Advanced Voice and Diction for Radio	3
COMU	2612	Radio Production II	3
COMU	4510	Radio Stations Management	3
COMU	4975	Seminar in Online Radio Production	3

Media Integration

Students will take 12 credits in COMU courses appearing in two or more of the options of the submajors.

Computer Science (A.A.S. and B.S.)

Associate Program

The Associate of Applied Sciences Degree in Computer Sciences offers an applied theoretical and practical preparation to develop in students basic and current concepts in the field of computation and information.

The Program promotes the development of skills such as logical reasoning, concepts and basic principles of assembly, microcomputer repair and configuration, mastery of at least one programming language, database management, and the basic knowledge of technical writing.

The Program also aims to develop professionals capable of continuing their learning, programming and installing software, and making publications by electronic means, in addition to having the capability of working in teams and possessing knowledge on professional ethics.

The Aguadilla, Arecibo, Barranquitas, Bayamón, Fajardo, Ponce and San Germán campuses are authorized to offer this Program. The Aguadilla Campus is also authorized to offer this Program through distance learning.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN COMPUTER SCIENCE

General Education Requirements		24 credits
Major Requirements		36 credits
	Total	60

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 36 credits

COMP	2015	Web Page Design	3
COMP	2060	Microcomputer Repair and Maintenance	3
COMP	2110	Introduction to Computer Science	3
COMP	2120	Programming Logic	3
COMP	2300	Visual Programming	3
COMP	2315	Structured Programming	3
COMP	2400	Object Oriented Programming	3
COMP	2501	Discrete Computational Structures I	3
COMP	2555	Applications in Relational Databases	3
COMP	2600	Business Programming	3
COMP	2600	Business Programming	3

COMP	2610	WEB Programming	3
COMP	2970	Seminar	3

Bachelor's Program

The Bachelor of Science Degree in Computer Science offers a theoretical and practical preparation to develop current concepts in the technical and diversified areas of the computer field.

The Program fosters the development of skills such as: logical reasoning, developing well-documented structured programs in various programming languages that work efficiently in a reasonable period of time, recognizing which types of problems are susceptible to solution by computer and using the necessary tools to solve problems and measure the implications of the student's work as an individual, as well as a team member. The Program also includes detailed knowledge of the organization, architecture, operation and limitations of computerized systems and a background that allows students to continue studying and developing themselves in the field of computer sciences.

Practice or internship experience may be credited to students who have had a satisfactory work experience and request such credit in writing to the director of the academic department. This credit will be subject to whether:

1. The student has been working for a minimum period of two years in a company within the five-year period immediately prior to the date of the request.
2. The student presents a certification and letter from the employer or the Human Resources Office of the company that specifies:

    a. Years of experience
    b. Period of time employed
    c. Position (s) occupied
    d. Description of tasks
    e. Any other evidence of professional performance during the time of employment.

3. The student pays 50% of the cost of registration for the practice or internship course for which credit is requested.

The Aguadilla, Arecibo, Barranquitas, Bayamón, Fajardo, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Aguadilla Campus is also authorized to offer this Program through distance learning. The Fajardo Campus is authorized to offer 50 percent of the courses online.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN COMPUTER SCIENCE

General Education Requirements		48 credits
Major Requirements		71 credits
Prescribed Distributive Requirements		9 credits
Elective Courses		3 credits
	Total	131

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category.

Major Requirements - 71 credits

COMP	2110	Introduction to Computer Science	3
COMP	2120	Programming Logic	3
COMP	2300	Visual Programming	3
COMP	2315	Structured Programming	3
COMP	2400	Object Programming	3

COMP	2501	Discrete Computational Structures I	3
COMP	2502	Discrete Computational Structures II	3
COMP	2900	Data Structures	3
COMP	3200	Assembler Language	3
COMP	3400	Software Engineering	3
COMP	3500	Operating Systems	3
COMP	3600	Computer Graphics	3
COMP	3850	Database Theory	3
COMP	4200	Teleprocessing and Networks	3
COMP	4420	Systems Design and Analysis	3
COMP	4430	Systems Development and Implementation	3
COMP	4600	Computer Architecture	3
COMP	4910	Internship and Professional Ethics	3
MATH	1500	Precalculus	5
MATH	2100	Introduction to Probability and Statistics	3
MATH	2251	Calculus I	5
PHYS	3001	General Physics I	4

Prescribed Distributive Requirements - 12 credits

Select nine (9) credits from the following courses.

COMP	2550	Logical and Functional Programming	3
COMP	2600	Commercial Programming	3
COMP	3010	File Management and Organization	3
COMP	3410	Computer Security	3
COMP	3800	Programming Languages	3
COMP	3970	Special Topics	1-6
COMP	4000	Microprocessors Architecture and Programming	3
COMP	4160	Parallel Processing	3
COMP	4250	Database Development, Implementation and Administration	3
COMP	4270	Automaton Theory	3
COMP	4280	Compilers	3
COMP	4480	Artificial Intelligence	3
COMP	4500	Expert Systems	3
COMP	4580	Introduction to Robotics	3

Minor in Computer Networks

The Aguadilla, Arecibo, Barranquitas, Bayamón, Fajardo, Metropolitan, Ponce and San Germán campuses are authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN COMPUTER NETWORKS - 21 credits

COMP	3500	Operating Systems	3
COMP	4200	Teleprocessing and Networks	3
COMP	4220	Advanced Teleprocessing and Networks	3
COMP	4230	Installation and Configuration of Networks Physical Components	3
COMP	4235	Operating Systems for Networks	3
COMP	4240	Network Management	3
COMP	4600	Computer Architecture	3

Minor in Basic Computation Skills

The Minor in Basic Computation Skills is designed to provide to the student of any discipline the basic knowledge and skills for the effective use of computers.

The San Germán Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN BASIC COMPUTATION SKILLS - 18 CREDITS

COMP	2015	Web Page Design	3
COMP	2060	Microcomputer Repair and Maintenance	3
COMP	2110	Introduction to Computer Science	3
COMP	2120	Programming Logic	3
COMP	2300	Visual Programming	3
COMP	2315	Structured Programming	3

Computerized Management Information Systems (A.A.S.)

Associate Program

The Associate of Applied Science Degree in Computerized Management Information Systems aims to prepare students for working with information systems in companies and giving them an understanding of the goals, functions and operations of business organizations as well as making them knowledgeable of information needs and the role of information systems in these organizations. In addition, it provides for the development of analytical and technical skills to identify, to study and to solve information management problems. Importance is given to communication skills that permit an effective interaction with other members of a business organization and especially with the users and those that install or implement computerized management information systems.

The Barranquitas Campus is authorized to offer this Program by both presential and distance learning modalities.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN COMPUTERIZED MANAGEMENT INFORMATION SYSTEMS

General Education Requirements		24 credits
Core Course Requirements		16 credits
Major Requirements		21 credits
Elective Courses		3 credits
	Total	64

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1200	Foundations of Algebra	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Core Course Requirements - 16 credits

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3
MAEC	2221	Basic Statistics	3

MAEC	2211	Principles of Economics (Micro)	3
MKTG	1210	Introduction to Marketing	3

Major Requirements - 21 credits

CMIS	1100	Introduction to Information Systems	3
CMIS	1200	Programming Algorithms	3
CMIS	2310	Visual Programming in Information Systems	3
CMIS	2450	Introduction to the Internet in the Enterprise	3
CMIS	3130	Database Design and Management	3
CMIS	3350	Telecommunications and Business Networks	3
CMIS	3420	Information System Analysis and Design	3

Conflict Mediation (Professional Certificate)

The purpose of this professional certificate is to prepare professional with theoretical and practical knowledge in the resolution of conflicts, essentially in mediation with specialties in different fields. The Program constitutes an answer to the urgent need to prepare professionals with the required competences so they can participate in situations of conflicts in varied scenarios.

The specialized professional certificate in conflict mediation is designed to provide knowledge of concepts, theories, approaches, methods, principles, techniques and strategies for resolution of conflicts and mediation. It will allow the professional to be acquainted with diverse scenarios where conflicting situations arise and the forms, methods and processes of mediation intervention. In addition, it will allow the student to develop the skills for the design, implementation and evaluation of programs of resolution of conflicts.

The participants of this certificate will have the opportunity to choose one of the following three specializations: Conflict Mediation in Family Relations, Conflict Resolution in the School Scenario and Conflict Resolution in the Work Scenario.

General Requirements

The admission, retention, satisfactory academic progress, and other requirement established in the current General Catalog are required.

Specific Admission Requirements

To be admitted to the Specialized Professional Certificate in Conflict Mediation, students must:

1. Possess at least a bachelor's degree from an accredited institution.
2. Have passed a course or have evidence of workshops in the use of computer technology.

Admitted students that wish to obtain the certification as a neutral examiner (mediator) issued by the Alternative Conflict Resolution Methods Office may request the certificate once they have finished the core courses of the specialized professional certificate in conflict mediation, and the other requirements established by this Office.

Graduation Requirements

To obtain the professional certification in mediation it is required to have passed the 17 required credits with a minimum general grade index of 3.0.

The Aguadilla Campus is authorized to offer this professional certificate.

Core Course Requirements - 7 credits (21 units) *

MEDI	4510	Introduction to Alternative Methods for Conflict Resolution	1
MEDI	4520	Legal and Constitutional Bases for Conflict Mediation	1
MEDI	4530	Communication Skills and Emotional Management	1
MEDI	4540	Structure and Processes of Conflict Mediation	2
MEDI	4550	Domestic Violence and its Implications in Mediation	1
MEDI	4560	Application and Basic Practice in Conflict Mediation	1

Specialization Requirements - 10 credits (30 units)

Conflict Mediation in Family Relations

MEDI	4571	Structures and Models of Mediation in Family Systems	**2**
MEDI	4572	Conflict Mediation in Divorce Cases	**2**
MEDI	4573	Conflict Mediation with Families and Couples that Stay Together	**2**
MEDI	4574	Domestic Legal Conflict Mediation	**2**
MEDI	4575	Application and Practice Cases in Family Conflicts	2

Conflict Resolution in the School Scenario

MEDI	4581	Conceptual Frameworks of School Mediation	**2**
MEDI	4582	Conflict Resolution Programs and School Mediation	**2**
MEDI	4583	Conflict Resolution in Elementary School K-6	**2**
MEDI	4584	Peer Mediation in Junior and High Schools 7-12	**2**
MEDI	4585	Application and Practice Cases in School Conflicts	**2**

Conflict Resolution in the Work Scenario

MEDI	4591	Models and Laws of Labor Relations	**2**
MEDI	4592	Labor-Management Conflict Mediation	**2**
MEDI	4593	Collective Bargaining	**2**
MEDI	4594	Executive-Managerial Conflict Mediation	**2**
MEDI	4595	Application and Practice Cases of Labor Conflicts	**2**

*Students that provide evidence of being certified as Mediators by the Alternative Conflict Resolution Methods Office of the Supreme Court of Puerto Rico may have the core courses validated if they:

1. Make a formal request to the Director of the Department, in which they provide evidence, in original, of the Certification issued by the Alternative Conflict Resolution Methods Office of the Supreme Court of Puerto Rico.
2. Present evidence of having completed the hours required by the Methods Office to obtain the Certification as a Mediator.
3. Pay 50% of the registration cost of the core courses.

Criminal Justice (A.A. and B.A.)

Associate Program

The Associate of Arts Degree in Criminal Justice aims to prepare students for a career in Criminal Justice by equipping them with the information necessary to continue studies towards the baccalaureate degree. The curriculum includes criminal investigation, penal law, organization and penal system management constitutional law, criminal evidence, delinquent behavior and administration of justice.

Upon completion of the Program, students will demonstrate ability to:

- Compete successfully for jobs at the initial level in criminal justice.
- Apply the theories of criminal justice in practices and existing regulations.
- Solve conflicts in a variety of situations.
- Identify cultural differences and the way these differences affect decisions and behavior.
- Apply highly ethical norms in studies of criminal cases and simulations.
- Apply penal laws in a variety of cases or simulations.

Graduates of this Program can work as Officers of Correctional Institutions, Customs Inspectors, Private Investigators, and as State and Municipal Police Officers.

Some practice centers may require a certificate of no criminal record.

The Aguadilla, Barranquitas and Fajardo campuses are authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN CRIMINAL JUSTICE

General Education Requirements		24 credits
Core Course Requirements		24 credits
Major Requirements		15 credits
	Total	63

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GEIC	1010	Information and Computer Literacy	3
GECF	1010	Introduction to the Christian Faith	3

Core Course Requirements - 24 credits

CJUS	1000	Introduction to Criminology	3
CJUS	2050	Victims of Crime	3
CJUS	2090	Juvenile Justice System in Puerto Rico	3
CJUS	3025	Criminal Law	3
POLS	1011	Introduction to Political Science	3
PSYC	1051	General Psychology I	3
SOCI	1030	Introduction to Sociology	3
SOCI	2080	Criminal Justice Systems in Puerto Rico	3

Major Requirements - 15 credits

CJUS	2070	Human and Civil Rights	3
CJUS	3030	Interviews and Interrogation	3
CJUS	3035	Special Criminal Laws	3
CJUS	4030	Criminal Investigation I	3
CJUS	4040	Evidence Management	3

Bachelor's Program

The Bachelor of Arts Degree in Criminal Justice offers three majors: 1) penology, 2) criminal investigation and (3) forensic investigation. The Program's modern curriculum adjusts the knowledge, theory and techniques of the field of Criminal Justice to the demands of a dynamic and changing society. The curriculum is inter-disciplinary

with branches of knowledge related to human behavior. The Program permits students to acquire personal and professional skills in accord with their interests and aptitudes. It also stresses the importance of the adequate development of attitudes and characteristics of the student's personality while emphasizing knowledge of the causes and spread of crime, the methods and modern techniques of criminal justice, crime prevention and rehabilitation. The Program is designed to: 1) prepare the student to occupy positions at the operational level in the field of the criminal justice system, both in the private and public sector, 2) upgrade the preparation of personnel offering services in these areas, 3) stimulate students to pursue graduate studies and 4) permit students to put into practice the theoretical knowledge acquired in their studies through an internship experience in their area of major. All course requirements for a major in penology, criminal justice and forensic investigation must be passed with a minimum grade of C.

Students who are candidates for the Internship must meet the requirements established by the University for this Program. These are listed below:

1. Internship application
2. No Criminal Record Certificate
3. Health Certificate
4. Release from responsibility
5. Official transcript of credits
6. Official evaluation of the Registrar
7. Three letters of recommendation
8. Four pictures 2X2
9. Present a letter from the coordinator of the Program to the Registrar.

In addition, students must meet the requirements stipulated by the practice center.

The Aguadilla, Arecibo, Barranquitas, Fajardo, Guayama and Metropolitan campuses are authorized to offer the majors in Penology and Criminal Investigation. The Ponce Campus is authorized to offer all three majors and is also authorized to offer the major in Criminal Investigation through distance learning. The Bayamón Campus is authorized to offer the major in Forensic Investigation.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN CRIMINAL JUSTICE

General Education Requirements		48 credits
Core Course Requirements		37 credits
Prescribed Distributive Requirements		6 credits
Major Requirements		18 credits
Elective Courses		6 credits
	Total	115

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." In addition to the course GEHS 2010, students of this Program will select two courses, from the following alternatives in the Historic and Social Context category: GEHS 2020, 4020, 4030.

Core Course Requirements - 37 credits

CJUS	1000	Introduction to Criminology	3
CJUS	2050	Victims of Crime	3
CJUS	2090	Juvenile Justice System in Puerto Rico	3
CJUS	3025	Criminal Law	3
CJUS	3027	White Collar Crimes	3
CJUS	4972	Seminar in Criminal Justice	3
POLS	1011	Introduction to Political Science	3
PSYC	1051	General Psychology I	3
PSYC	3001	Statistical Methods	3

SOCI	1030	Introduction to Sociology	3
SOCI	2080	Criminal Justice System in Puerto Rico	3
SOWO	4873	Social Scientific Research Methodology	4

Prescribed Distributive Requirements - 6 credits from the following courses:

CJUS	2075	Social Deviation	3
CJUS	3015	Women Faced with Crime	3
CJUS	3055	Federal Jurisdiction	3
CJUS	397	Special Topics*	3
CJUS	4020	Alcoholism and Drug Addiction	3
CJUS	4035	Modern Technology in Investigation	3
CJUS	4910	Internship in Penology	
		or	
CJUS	4914	Internship in Criminal Investigation	
		or	
CJUS	4915	Internship in Forensic Investigation	3
PSYC	4520	Crisis Intervention	3
SOCI	2050	Urban Society and its Transformation	3
SOCI	3753	Social Problems of Puerto Rico	3

*The Special Topics course does not substitute the Seminar in Criminal Justice.

Major Requirements - 18 credits

At least one of the following majors is required:

Criminal Investigation (Criminal Justice)

Criminal Investigation - 18 credits

CJUS	2070	Human and Civil Rights	3
CJUS	3030	Interviews and Interrogation	3
CJUS	3035	Special Criminal Laws	3
CJUS	4030	Criminal Investigation I	3
CJUS	4040	Evidence Management	3
CJUS	4060	Fraud Detection and Management	3

Penology (Criminal Justice)

Penology - 18 credits

CJUS	2070	Human and Civil Rights	3
CJUS	3040	Penology	3
CJUS	3045	Rights of the Correctional Population	3
CJUS	3060	Correctional Administration	3
CJUS	3080	Community Based Rehabilitation	3
SOCI	3560	Rehabilitation System for the Delinquent	3

Forensic Investigation (Criminal Justice)

Forensic Investigation - 18 credits

CJUS	2070	Human and Civil Rights	3
CJUS	2205	Oral and Written Communication for Forensic Investigation	3
CJUS	3035	Special Criminal Laws	3

CJUS	3241	Forensic Investigation I	3
CJUS	3242	Forensic Investigation II	3
CJUS	4014	Data Analysis for Forensic Investigation	3

The Internships in Criminal Investigation, Penology and Forensic Investigation may be substituted by a documented experience in the field of Criminal Justice. The substitution will be subject to the following: (a) that the student has worked full time for a period of two (2) years within the five (5) years immediately prior to the date of the request; (b) that the experience to be approved is related to the student's area of specialization and to the criteria established by the University for the approval of this internship.

Criminology (B.S.S.)

The Program leading to the Bachelor of Social Sciences degree in Criminology is designed to promote the development of a judicious Sociology professional who demonstrates the knowledge, skills and attitudes to offer services to private and governmental agencies. This knowledge is based on concepts and principles of social sciences and especially of criminology.

This Program aspires to prepare graduates capable of performing in social control agencies such as: correctional systems, public and private security, among others. The main component of this Bachelor's Program is aimed at scientific social research to find solutions to criminality.

The Ponce Campus is authorized to offer this Program through distance learning only.

REQUIREMENTS FOR THE BACHELOR OF SOCIAL SCIENCES DEGREE IN CRIMINOLOGY

General Education Requirements		48 credits
Core Course Requirements		33 credits
Prescribed Distributive Requirements		9 credits
Major Requirements		15 credits
Elective Courses		6 credits
	Total	111

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees."

Core Course Requirements - 33 credits

CRIM	2010	Legal Sociology	3
CRIM	3020	Statistical Methods Applied to Criminology	3
CRIM	3838	Deviant Behavior, Antisocial and Criminal Sociology	3
CRIM	4030	Contemporary Social Problems	3
CJUS	1000	Introduction to Criminology	3
CJUS	2050	Victims of Crime	3
CJUS	2070	Human and Civil Rights	3
POLS	1011	Introduction to Political Science	3
PSYC	1051	General Psychology I	3
SOCI	1030	Introduction to Sociology	3
SOCI	2050	Urban Society and its Transformation	3

Prescribed Distributive Requirements - 9 credits

Select three courses from the following

CRIM	3014	Crime and Media	3
CRIM	4020	Terrorism and Society	3
CJUS	3027	White Collar Crimes	3
CJUS	3040	Penology	3
SOCI	2020	Structure, Continuity and Change	3

Major Requirements - 15credits

CRIM	3021	Gender and Crime	3
CRIM	3040	Mental Disorders and Criminology	3
CRIM	4010	Criminological Social Research	3
CRIM	4910	Internship in Criminology	3
CRIM	4970	Contemporary Theoretical Debates in Criminology	3

Design (B.A.)

The Bachelor of Arts Degree in Design has as its goal to prepare professionals in the diverse areas related to design in two and three dimensions. The principles and foundations of visual language will be studied. The program focuses on the study of the design through contemporary and traditional media and techniques. It also complements the artistic and creative vision with a pragmatic vision that promotes the entrepreneurial development of the student.

At the intellectual level, this Program will offer excellent knowledge of the history and philosophy of art and of esthetics. It emphasizes the design and production of functional articles that have esthetic qualities, by using traditional, as well as digital media. The graduates of this Program will be able to develop their cognitive and creative capacities, as well as their critical judgment through the design of artistic objects and the exposure to works of art and design of diverse eras and cultures with emphasis on the contemporary world.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN DESIGN

General Education Requirements		48 credits
Core Course Requirements		45 credits
Prescribed Distributive Requirements		15 credits
Elective Courses		9 credits
	Total	117

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section “General Education Requirements for Bachelors’ Degrees.”

Core Course Requirements 45 credits

DSGN	1000	Elements and Principles of Artistic Language	3
DSGN	1040	Drawing as a Foundation for Design	3
DSGN	2001	Two-Dimensional Design I	3
DSGN	2002	Two-Dimensional Design II	3
DSGN	2021	Tridimensional Design I	3
DSGN	2022	Tridimensional Design II	3

DSGN	3010	Basic Digital Design	3
DSGN	3030	Chronology of Design	3
DSGN	3400	Entrepreneurial Development in Design	3
DSGN	3500	Concept and Creativity	3
DSGN	3510	Specialized Workshop	4
DSGN	4050	Development of Portfolio	4
DSGN	4910	Internship in Design	4
ENTR	2200	Fundamentals of Entrepreneurship	3

Prescribed Distributive Requirements

(Select 15 credits from the following)

ARTE	2403	History of Art	3
ARTE	3403	History of Modern and Contemporary Art	3
DSGN	3000	Surface Design, Techniques and Materials	3
DSGN	3110	Applied Tridimensional Design, Techniques and Materials	3
DSGN	3200	Principle of the Functional Materials	3
DSGN	3220	Intermediate Digital Design	3
DSGN	3340	Structural Design, Techniques and Cuts	3
DSGN	4010	Design and Contemporary Cultures	3

Design and Development of Video-Games (B.S.)

Graduation Requirements

In addition to complying with the graduation requirements of this Catalog, students must have approved the courses of the major with a minimum grade of C and the course GAME 4100 Project: Design, Development and Publication of a Video Game with a minimum grade of B.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN DESIGN AND DEVELOPMENT OF VIDEO-GAMES

General Education Requirements		48 credits
Major Requirements		65 credits
Prescribed Distributive Requirements		9 credits
Elective Courses		6 credits
	Total	128

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category.

Major Requirements - 65 credits

COMP	2110	Introduction to Computer Science	3
COMP	2120	Programming Logic	3
COMP	2300	Visual Programming	3
COMP	2315	Structured Programming	3
COMP	2400	Object Programming	3
COMP	2501	Discrete Computational Structures I	3

COMP	2502	Discrete Computational Structures II	3
COMP	2900	Data Structures	3
COMP	3400	Software Engineering	3
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
PHYS	3300	Physics for Video Games	4
GAME	1100	Design of Video Games	3
GAME	3101	Video Game Programming I	3
GAME	3102	Video Game Programming II	3
GAME	3103	Video Game Programming III	3
GAME	3201	Graphics of Video Games I	3
GAME	3202	Graphics of Video Games II	3
GAME	3203	Graphics of Video Games III	3
GAME	4100	Project: Design, Development and Publication of a Video Game	3

Prescribed Distributive Requirements 9 credits

(Select 9 credits from the following courses)

GAME	1200	Interactive Narrative for Video Games	3
GAME	3400	Artificial Intelligence for Video Games	3
GAME	4300	Emerging Issues in the Field of Video Games	3
GAME	4400	Video Game Development for Consoles and Portable Equipment	3
GAME	4500	Emulators	3
GAME	4910	Internship: Experience in the Video Games Industry	3

Education (B.A. and Certificate)

The Teacher Education Program constitutes an answer to the needs and aspirations of a society in constant change and to the requirements for certification of the Puerto Rico Department of Education. Taking as a basis Vision 2012, the mission and goals of Inter American University of Puerto Rico, the Institution's concept of an educated person and the professional standards that characterize the teaching professional, the Teacher Education Program provides a framework of integrated educational experiences. The Program is directed toward the professional formation of a teacher of excellent quality, that is, one who can contribute in an effective manner to produce the changes deemed desirable in students, knowledgeable about the problems confronting education in Puerto Rico and capable of collaborating in the process of change to improve the quality of both the teacher's life and that of others. The Program, therefore, seeks to achieve a greater integration of its components: professional courses, major courses and general education courses.

Teacher preparation emphasizes the development of those skills and attitudes that allow for the formation of a critical, flexible and creative mind that by using educational theories as the starting point is capable of identifying and posing problems, of carrying out research to find solutions and proposing adequate answers which can be verified through experimentation.

The new vision of teacher preparation implies a program of studies that provides a great number of related experiences that provide for the construction of pedagogical knowledge and content which will develop the future teacher. These experiences are characterized by continuous reflection, practice in real settings, research, collaboration, the relevance of contents, the pedagogical model and the search for and use of tools that permit the solution of problems inherent in the teaching learning processes in different contexts. In this Program of studies the general education, major, and core course components will be integrated.

This vision may be translated into the following goals of the Teacher Education Program as reflected in the graduates who are expected to:

1. Be committed to the professionalization of their chosen field and help dignify the teaching profession with their performance.
2. Use critical reflection as a tool in pedagogical practice.

3. Recognize and use the classroom as a laboratory of human experiences that will increase and enrich the teaching-learning endeavor.
4. Utilize research as a resource for enriching and expanding knowledge and improving pedagogical practice.
5. Perform a pedagogical practice founded on the mastery of knowledge.
6. Be a leader in promoting change and innovation.
7. Conceive of education as a human process.
8. Understand that formal and informal education contribute to the development of the humanistic and scientific culture of society.
9. Be aware of the need for collaborative work as an essential component of their pedagogical practice.
10. Conceive of the oral and written language in their vernacular and second language as essential instruments for the teaching learning process.
11. Be aware of their ethical and legal responsibilities to take positions and to contribute to the solution of problems.
12. Make effective use of technology.
13. Have a clear vision of the diverse ways in which populations are distributed.
14. Be committed to the practice and promotion of a better quality of life.

The University offers study programs for the Bachelor of Arts degree in Early Childhood Education: Preschool Level, Elementary Level (K-3), Elementary Level (4-6), Special Education, Secondary Education, Physical Education, School Health, Musical Education and Art Education. These programs meet the requirements for teacher certification granted by the Puerto Rico Department of Education.

Students who have had previous satisfactory teaching experience may be exempt from the teaching internship if they request it. This exemption will be subject to the following conditions:

A. The student has been teaching full time for two academic years within the last four years, in a school accredited by the Puerto Rico Department of Education. Has taught in accredited private schools, Head Start Centers, or in the accredited school system of the United States. A written certification issued by the Office of Teacher Certification of the Department of Education is required.
B. The student pays 50% of the registration cost of the courses Experiences in Educational Environment I and II for the final validation of the credits.
C. The experience to be credited by the University corresponds to the requirements for the degree that the student hopes to obtain from the Institution.

Public as well as private schools serve as daytime laboratories for the students to acquire experience in the area of teaching and learning.

Admission Requirements for the Teacher Education Program

All students admitted to the University that seek admission to the Teacher Education Program will be classified under the PRE-PEM until they are officially admitted to the PEM major of their interest.

When requesting admission and readmission to the Teacher Education Program, students must meet the following requirements:

1. Have a minimum general point average of 2.50 at the university level.
2. Have earned a minimum of 18 university credits, among these are:
    a. EDUC 1080 (Field Experience in the Educational Scenario I), or its equivalent, with a minimum grade of B.
    b. EDUC 2021 (History and Philosophy of Education) or EDUC 2022 (Society and Education) or EDUC 2031 (Developmental Psychology), with a minimum grade of B.
    c. GESP 1101 (Literature and Communication: Narrative and Essay) and 1102 (Literature and Communication: Poetry and Theater), with a minimum grade of B.
    d. GEEN 1101 and 1102 (English as a Second Language I and II) or GEEN 1201 and 1202 (Development of English through Reading I and II) or GEEN 2311 (Reading and Writing) and 2312 (Literature and Writing) with a minimum grade of B. Students wishing to enter the Teaching of English as a Second Language at the Elementary Level program or the Teaching of English as a Second Language at the

Secondary Level program must have passed the courses GEEN 2311 Reading and Writing and GEEN 2312 Literature and Writing.

3. Submit, in the corresponding academic department, the Application for Admission to the Teacher Education Program.
4. Students will have three (3) semesters o four (4) trimesters to complete the admission requirements. If they do not complete these requirements in the required time, they must choose another field of studies.

Additional Notes:

1. Students presenting official evidence of having worked under a teacher or assistant teacher contract during a semester or more will be exempt from taking the course EDUC 1080 – Field Experience in the Educational Scenario I.
2. Students in distance learning courses that require visits to schools must make the corresponding arrangements prior to registering in the courses.

Retention Requirements for the Teacher Education Program

1. To remain in the Teacher Education Program, students must finish the academic year with a minimum general grade index as indicated below:
    a. 47 credits or less: 2.50
    b. 48-71 credits: 2.75
    c. 72-95 credits: 2.90
    d. 96 or more credits: 3.00
2. Student must comply with the institutional norm of credits attempted and approved.
3. Students that do not meet the required grade point index to remain in the Program will be placed on probation for a period no greater than two academic semesters or three trimesters.
4. Students that do not reach the required grade point index during the probationary period will be dropped from the Teacher Education Program.
5. Students dropped from the Program may request admission to or change their major to another field of studies.

Admission Requirements for the Course Clinical Experiences in the Educational Scenario II (EDUC 4013) or Practice Teaching (Applies to students admitted or readmitted to the Teacher Education Program starting in August of 2009.)

1. Have passed the Core Course Requirements of the Program, except EDUC 4551 and 4552.
2. Have passed the Major Requirements.
3. Have a minimum grade point average of 3.00.
4. Have a minimum grade point average of 3.00 in the Core Course Requirements, in the Major Requirements and in the Specialization Requirements.
5. Submit the Application for Admission and have the approval of the Practice Teaching Coordinator or Supervisor.

Graduation Requirements of the Teacher Education Program

Every student that is a candidate for graduation from any of the majors of the Teacher Education Programs, who have been admitted or readmitted since August of 2009, must:

1. Have obtained a minimum general grade point average of 3.00.
2. Have obtained a minimum grade point average of 3.00 in the core course requirements.
3. Have obtained a minimum grade point average of 3.00 in the major and specialization.
4. Have earned a minimum grade of B in the course of Clinical Experiences II Practice Teaching course).

Graduation Grade Point Indexes for Students Admitted or Re-admitted to the Teacher Education Program before August of 2009

Academic year of Graduation	General Index in Core, Major and Specialization Courses
2009-2011	2.50
2011-2013	2.80
2013-2014 and beyond	3.00

Teacher Certification of Puerto Rico

Students interested in obtaining the teacher certification to teach in Puerto Rico, must fulfill the current requirements of the Department of Education of the Commonwealth of Puerto Rico.

Minor, Alternate Method and Recertification

Student interested in completing a Minor in Education, or in being certified by the Alternate Method or in being recertified must have a minimum general average of 2.50.

Preschool Level Education

The Aguadilla, Arecibo, Fajardo, Guayama, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Arecibo Campus is authorized to offer this Program on line.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EARLY CHILDHOOD EDUCATION: PRESCHOOL LEVEL

General Education Requirements		54 credits
Core Course Requirements		41 credits
Major Requirements		28 credits
Elective Courses		3 credits
	Total	126

General Education Requirements - 54 credits

Fifty four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	4050	Curriculum Design	2
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2

EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013A	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 28 credits

EDUC	2020	Health, Nutrition and First Aid	3
EDUC	2875	Language Stimulation	3
EDUC	3003	Nature and Needs of Infants and Preschool Age Children with Developmental Deficiencies	3
EDUC	3090	Children's Literature	3
EDUC	3126	Psycho-philosophical Influences in Curriculum Models for Early Childhood Education	4
EDUC	3130	Fine Arts in the Educational Process	3
EDUC	3170	Parents as Educators	3
EDUC	3260	Organization and Administration of Childhood Services	3
EDUC	4110	Children's Play as a Learning Process	3

Early Childhood Education: Elementary Primary Level (K-3)

The Aguadilla, Arecibo, Fajardo, Guayama, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Arecibo Campus is also authorized to offer this Program through distance learning.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EARLY CHILDHOOD EDUCATION: PRIMARY LEVEL (K-3)

General Education Requirements		54 credits
Core Course Requirements		41 credits
Major Requirements		29 credits
Elective Courses		3 credits
	Total	127

General Education Requirements - 54 credits

Fifty four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	4050	Curriculum Design	2
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2

EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013B	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 29 credits

EDUC	2020	Health, Nutrition and First Aid	3
EDUC	3075	Mathematics Curriculum, Teaching and Assessment in the Primary Grades (K-3)	2
EDUC	3083	Social Studies Curriculum, Teaching and Assessment in the Primary Grades (K-3)	2
EDUC	3090	Children's Literature	3
EDUC	3130	Fine Arts in the Educational Process	3
EDUC	3150	The Kindergarten in the School Program	3
EDUC	3170	Parents as Educators	3
EDUC	3185	English Curriculum, Teaching and Assessment in the Primary Grades (K-3)	2
EDUC	3235	Reading and Writing in the Primary Grades	3
EDUC	3265	Natural Sciences Curriculum, Teaching and Assessment in the Primary Grades (K-3)	2
EDUC	4110	Children's Play as a Learning Process	3

Early Childhood Education: Elementary Level (4-6)

The Aguadilla, Arecibo, Fajardo, Guayama, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Arecibo Campus is also authorized to offer this Program through distance learning.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EARLY CHILDHOOD EDUCATION: ELEMENTARY LEVEL (4-6)

General Education Requirements		54 credits
Core Course Requirements		41 credits
Major Requirements		30 credits
Elective Courses		3 credits
	Total	128

General Education Requirements - 54 credits

Fifty four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3

EDUC	4012	Classroom Research	2
EDUC	4013C	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 30 credits

EDUC	2020	Health, Nutrition and First Aid	3
EDUC	3076	Mathematics Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3084	Social Studies Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3090	Children's Literature	3
EDUC	3130	Fine Arts in the Educational Process	3
EDUC	3170	Parents as Educators	3
EDUC	3186	English Curriculum, Teaching and Assessment in the Primary Grades 4-6)	3
EDUC	3232	Language Arts Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3266	Natural Sciences Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	4110	Children's Play as a Learning Process	3

Early Childhood in Special Education

The Guayama Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EARLY CHILDHOOD EDUCATION IN SPECIAL EDUCATION

General Education Requirements		54 credits
Core Course Requirements		37 credits
Major Requirements		31 credits
Elective Courses		3 credits
	Total	125

General Education Requirements - 54 credits

Fifty four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

Core Course Requirements - 37 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013H	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1

EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 31 credits

EDUC	2875	Language Stimulation	3
EDUC	3003	Nature and Needs of Infants and Preschool Age Children with Developmental Deficiencies	3
EDUC	3130	Fine Arts in the Educational Process	3
EDUC	3290	Classroom Management	3
EDUC	3460	Design and Development of Preschool Curriculum and Materials for Disabled Children	3
EDUC	3464	Development of Programs and Services for Children with Disabilities and Their Families	3
EDUC	3466	Seminar: Infants with Disabilities and the Family	4
EDUC	3467	Assessment Techniques and Instruments for Infants and Preschool Age Children with Disabilities	3
EDUC	4110	Children's Play as a Learning Process	3
HPER	4407	Movement Experiences	3

Elementary Education in Special Education

The Aguadilla and Ponce campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN ELEMENTARY EDUCATION IN SPECIAL EDUCATION

General Education Requirements		54 credits
Core Course Requirements		37 credits
Major Requirements		21 credits
Specialization Requirements		27 credits
Elective Courses		3 credits
	Total	142

General Education Requirements - 54 credits

Fifty four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the courses GEHP 3000 and GEMA 1000. Instead they will take the course HPER 3160 or 3310 to meet the requirements of the category. In the Basic Skills in Mathematics category they will take GEMA 1001 and GEMA 1002.

Core Course Requirements - 37 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4013G	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 21 credits

EDUC	2020	Health, Nutrition and First Aid	3
EDUC	3076	Mathematics Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3084	Social Studies Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3130	Fine Arts in the Educational Process	3
EDUC	3186	English Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3232	Language Arts Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3266	Natural Sciences Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3

Specialization Requirements - 27 credits

EDUC	2905	Nature and Needs of Students with Mental Retardation and Emotional Disturbances	3
EDUC	2906	Nature and Need of Students with Specific Learning Problems, ADD and ADHD	3
EDUC	3140	Language and Reading	3
EDUC	3270	Education Diagnosis, Evaluation and Assessment for Students with Mild Disabilities	3
EDUC	3290	Classroom Management	3
EDUC	3420	Curricular Content, Diagnosis and Correction of Mathematical Learning Problems	3
EDUC	3440	Curricular Content, Diagnosis and Treatment of Reading and Writing Problems	3
EDUC	3470	Technological Assistance, Curriculum and Materials for Teaching Students with Disabilities	3
EDUC	3570	Strategies, Methods and Techniques for Teaching Students with Disabilities	3

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN VISUAL ARTS: SPECIALIZATION IN ART EDUCATION (see the requirements and the campuses authorized to offer this Program under the Visual Arts Program.)

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EDUCATION IN PHYSICAL EDUCATION AT THE ELEMENTARY LEVEL, SECONDARY LEVEL AND IN ADAPTED PHYSICAL EDUCATION (see the requirements and the campuses authorized to offer this Program under the Health, Physical Education and Recreation Program.)

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EDUCATION IN PHYSICAL EDUCATION IN SCHOOL HEALTH (see the requirements and the campuses authorized to offer this Program under the Health, Physical Education and Recreation Program.)

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE IN GENERAL MUSIC EDUCATION-VOCAL (see the requirements and the campuses authorized to offer this Program under the Music Program.)

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE IN MUSIC EDUCATION-INSTRUMENTAL (see the requirements and the campuses authorized to offer this Program under the Music Program.)

Secondary Education

Secondary Education in Biology

The Bachelor of Arts Program in Secondary Education with a major in the Teaching of Biology rests on the fundamental principles of the development of the human being able to think, to analyze critically and to evaluate the learning processes. This Program has as its standards the foundation, theories and methodologies, relevant to the teaching of chemistry in the classroom. This will permit graduates to apply in the classroom the content (knowledge, skills and attitudes), the methodology (strategies, methods and techniques) and the learning evaluation methods, learned during their study program.

It will use the appropriate curricular structure and will be governed by the standards of excellence applicable to the study of biology.

The Program aims to provide the theoretical and practical base for future biology teachers. This implies that they possess:

Knowledge in:

1. The theory, methodology and application of the curricular structure.
2. The usefulness of the scientific method in understanding natural phenomena in relation to living beings.
3. The fundamental and developing concepts that make up biological sciences.
4. Evaluation and assessment in the classroom.
5. The historical and philosophical frame of education.
6. The different stages of development of the human being and how they affect the capacity to learn.

Skills in:

1. The use of technology and scientific instrumentation for the comprehension, analysis, synthesis and evaluation of natural phenomena.
2. The interpretation and analysis of scientific information.
3. Communication within the scientific frame.
4. The use of the investigation process in the classroom.
5. The design and evaluation of curriculum and how this act in response to the education of a society.
6. The use of technology in the field of the education.

Attitudes for:

1. Strengthening ethical aspects in biology.
2. Promoting respect and appreciation for nature.
3. Promoting favorable changes in society through solutions or alternatives that improve the quality of biology teaching.

The campuses of Aguadilla, Arecibo, Barranquitas, Fajardo, Metropolitan, Ponce and San Germán are authorized to offer this program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SECONDARY EDUCATION IN BIOLOGY

General Education Requirements		51 credits
Core Course Requirements		41 credits
Major Requirements		48 credits
Elective Courses		3 credits
	Total	143

General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.They will take the course GEST 3030 in the Scientific and Technological Context category. Students will take the course GEMA 1200 in the Basic Skills in Mathematics category.

Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3

EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013O	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 45 credits

BIOL	1101, 1102	Modern Biology I, II	6
BIOL	1103, 2013	Skills Laboratory I, II	2
BIOL	2103	Zoology	3
BIOL	2104	General Botany	3
BIOL	2251	Genetics	3
BIOL	3106	Anatomy and Human Physiology	4
BIOL	3503	General Ecology	3
EDUC	3863	Instructional Theory, Methodology, and Technological Resources in the Teaching of Biology	3
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
MATH	1500	Precalculus	5
PHYS	3001, 3002	General Physics I, II	8

If, in addition to their certification as Biology teachers, students wish to be certified as Junior High School Science teachers, they must take course EDUC 3864 (Instructional Theories, Methodology, and Technological Resources in the Teaching of Science in the Junior High School) in addition the 42 credits of the core requirements,

Secondary Education in Chemistry

The Bachelor of Arts Program in Secondary Education with a major in the Teaching of Chemistry, rests on the fundamental principles of the development of the human being able to think, to analyze critically and to evaluate the learning processes. This Program has as its standards the foundation, theories and methodologies, relevant to the teaching of chemistry in the classroom. This will permit graduates to apply in the classroom the content (knowledge, skills and attitudes), the methodology (strategies, methods and techniques) and the learning evaluation methods, learned during their study program.

It will use the appropriate curricular structure and will be governed by the standards of excellence applicable to the study of chemistry.

The Program aims to provide the theoretical and practical base for future chemistry teachers. This implies that they possess:

Knowledge in:

1. The theory, methodology and application of the curricular structure.
2. The essential principles, laws and theories of chemistry.
3. The most common instruments used in chemical processes.
4. The usefulness of the scientific method in understanding natural phenomena in relation to living beings.
5. Evaluation and assessment in the classroom.
6. The historical and philosophical frame of education.
7. The different stages of development of the human being and how they affect the capacity to learn.

Skills in:

1. The use of technology and scientific instrumentation for the comprehension, analysis, synthesis and evaluation of chemical processes.
2. The interpretation and analysis of scientific information.
3. Communication within the scientific frame.
4. The use of the investigation process in the classroom.
5. The design and evaluation of curriculum and how this act in response to the education of a society.
6. The use of technology in the field of the education.

Attitudes for:

1. Demonstrating ethical principles in the application of chemical concepts and processes.
2. Promoting favorable changes in society through solutions or alternatives that improve the quality of chemistry teaching.
3. Recognizing the importance of scientific knowledge and technology to improve the quality of life.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SECONDARY EDUCATION IN CHEMISTRY

General Education Requirements		51 credits
Core Course Requirements		44 credits
Major Requirements		49 credits
Elective Courses		3 credits
	Total	147

General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. They will take the course GEST 3030 in the Scientific and Technological Context category. Students will take the course GEMA 1200 in the Basic Skills in Mathematics category.

Core Course Requirements - 44 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	3566	Methods and Techniques in the Teaching of Chemistry	3
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013P	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 49 credits

CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221	Organic Chemistry I	4
CHEM	2222	Organic Chemistry II	4
CHEM	2223	Development and Application of Didactic Materials in Chemistry	3
CHEM	3320	Analytical Chemistry	4
BIOL	1101	Modern Biology I	3
BIOL	1102	Modern Biology II	3
BIOL	1103	Skills Laboratory I	1
BIOL	2013	Skills Laboratory II	1
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

Secondary Education in History

The Metropolitan and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SECONDARY EDUCATION IN HISTORY

General Education Requirements		48 credits
Core Course Requirements		38 credits
Major Requirements		39 credits
Elective Courses		6 credits
	Total	131

General Education Requirements - 48 credits

Forty-eight (48) credits are required in General Education Requirements for this Program. Students will take GEHS 3020 and 3040 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. They are exempt from taking the course GEHS 2010. Courses GEST 2020 and 3030 are required in the Scientific and Technological Context category.

Core Course Requirements - 38 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013T	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1

Major Requirements - 39 credits

HIST	1020	The Ancient World	3
HIST	1030	The Medieval World	3
HIST	1040	The Modern World	3
HIST	1050	The Contemporary World	3
HIST	2030	Colonial Latin America	
		or	
HIST	2035	Latin America since Independence	3
HIST	2050, 2055	Puerto Rico I, II	6
HIST	3050, 3055	Unites States I, II	6
HIST	4020	Historiography	
		or	
HIST	4210	Historical Research	3
EDUC	3565	Methods and Techniques in Teaching History	3

One of the following courses:

HIST	2040	The Caribbean since the 17th Century	3
HIST	3040	Sub-Saharan Africa	3
HIST	3060	Asia	3
HIST	3070	Russia until the 19th Century	3
HIST	3075	Russia during the 19th and 20th Centuries	3

One of the following courses:

GEOG	1144	Introduction to Cultural Geography	3
GEOG	3274	Economic Geography	3
GEOG	4224	Political Geography	3

Secondary Education in Mathematics

The Arecibo, Metropolitan and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SECONDARY EDUCATION IN MATHEMATICS

General Education Requirements		51 credits
Core Course Requirements		41 credits
Major Requirements		35 credits
Elective Courses		6 credits
	Total	130

General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students will take the course GEMA 1200 in the Basic Skills in Mathematics category.

Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3

EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013Q	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 35 credits

MATH	1500	Precalculus	5
MATH	2000	Discrete Methods	
		or	
COMP	2500	Discrete Computational Structures	3
MATH	2100	Introduction to Probability and Statistics	3
MATH	2251	Calculus I	5
MATH	3080	Topics in Geometry	3
MATH	3130	Theory of Numbers	3
MATH	3350	Linear Algebra	3
MATH	4391	Abstract Algebra II	3
MATH	4430	Teaching Mathematics in the Secondary School	3
PHYS	3001	General Physics I	4

Secondary Education in Science for the Junior High School

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SCIENCE FOR THE JUNIOR HIGH SCHOOL

General Education Requirements		51 credits
Core Course Requirements		41 credits
Major Requirements		33 credits
Elective Courses		3 credits
	Total	128

General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. They will take the course GEST 3030 in the Scientific and Technological Context category.

Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3

EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013N	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 33 credits

BIOL	1101, 1102	Modern Biology I, II	6
BIOL	1103, 2013	Skills Laboratory I, II	2
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
PHYS	3001, 3002	General Physics I, II	8
MATH	1500	Precalculus	5
GEOG	2034	Introduction to Physical Geography	4

Secondary Education in Social Studies

The Metropolitan and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SECONDARY EDUCATION IN SOCIAL STUDIES

General Education Requirements		51 credits
Core Course Requirements		38 credits
Major Requirements		36 credits
Elective Courses		3 credits
	Total	128

General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. Students will take GEHS 3030, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.They are exempt from taking the course GEHS 2010. Courses GEST 2020 and 3030 are required in the Scientific and Technological Context category.

Core Course Requirements - 38 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2

EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013S	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1

Major Requirements - 36 credits

ANTH	1040	Introduction to Anthropology	3
EDUC	3564	Methods and Techniques in Teaching Social Studies	3
GEOG	1144	Introduction to Cultural Geography	3
GEOG	4494	Geography of Puerto Rico	3
HIST	2050	History of Puerto Rico I	3
HIST	2055	History of Puerto Rico II	3
HIST	3050	History of the United States I	3
HIST	3055	History of the United States II	3
POLS	1011	Introduction to Political Science	3
POLS	3080	Political Economics	3
SOCI	2030	Introduction to Sociology	3
SOCI	3753	Social Problems of Puerto Rico	3

Secondary Education in Spanish

The Aguadilla, Arecibo, Barranquitas, Metropolitan, and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SECONDARY EDUCATION IN SPANISH

General Education Requirements		51 credits
Core Course Requirements		41 credits
Major Requirements		37 credits
Elective Courses		3 credits
	Total	132

General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3

EDUC	4012	Classroom Research	2
EDUC	4013R	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 37 credits

Students of the Bachelor of Arts Degree in Secondary Education in Spanish must pass courses SPAN 2541 and SPAN 2542 with a minimum grade of B. The remaining major courses must be passed with a minimum grade of C.

SPAN	2541, 2542	Advanced Grammar I, II	6
SPAN	3000	Linguistics Applied to Teaching	3
SPAN	3020	Writing Workshop	3
SPAN	3021, 3022	Spanish Literature I, II	6
SPAN	3071, 3072	Spanish-American Literature I, II	6
SPAN	3211, 3212	Puerto Rican Literature I, II	6
SPAN	4010	Reading Workshop	3
EDUC	4035	Methodology in Teaching the Maternal Language and Literature	4

Special Education

The Arecibo, Barranquitas, Fajardo, Metropolitan and San Germán campuses are authorized to offer this program. The Arecibo Campus is also authorized to offer this Program through distance learning.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SPECIAL EDUCATION

General Education Requirements		54 credits
Core Course Requirements		37 credits
Major Requirements		27 credits
Elective Courses		3 credits
	Total	121

General Education Requirements - 54 credits

Fifty-four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

Core Course Requirements - 37 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2

EDUC	4013V	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 27 credits

EDUC	2905	Nature and Needs of Students with Mental Retardation and Emotional Disturbances	3
EDUC	2906	Nature and Need of Students with Specific Learning Problems, ADD and ADHD	3
EDUC	3140	Language and Reading	3
EDUC	3270	Educational Diagnosis, Evaluation and Assessment for Students with Disabilities	3
EDUC	3290	Classroom Management	3
EDUC	3420	Curricular Content, Diagnosis and Correction of Learning Problems in Mathematics	3
EDUC	3440	Curricular Content, Diagnosis and Correction of Learning Problems in Reading and Writing	3
EDUC	3470	Technological Assistance, Curriculum and Materialsfor Teaching Students with Disabilities	3
EDUC	3570	Strategies, Methods and Techniques for Teaching Students with Disabilities	3

Students in the Bachelor of Arts Program in Special Education are exempt from taking the courses EDUC 4050 and 3013.

Special Education in Autism

The Ponce Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SPECIAL EDUCATION IN AUTISM

General Education Requirements		54 credits
Core Course Requirements		37 credits
Special Education Requirements		27 credits
Major Requirements		18 credits
Elective Courses		3 credits
	Total	139

General Education Requirements - 54 credits

Fifty-four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

Core Course Requirements - 37 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2

EDUC	4013U	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Students of the Bachelor of Arts in Special Education are exempt from taking the core courses EDUC 4050 and 3013.

Special Education Requirements - 27 credits

EDUC	2905	Nature and Needs of the Students with Mental Retardation and Emotional Disturbances	3
EDUC	2906	Nature and Needs of Students with Specific Learning Problems, ADD and ADHD	3
EDUC	3140	Language and Reading	3
EDUC	3270	Educational Diagnosis, Evaluation, and Assessment for Students with Disabilities	3
EDUC	3290	Classroom Management	3
EDUC	3420	Curricular Content, Diagnosis and Treatment of Learning Problems in Mathematics	3
EDUC	3440	Curricular Content, Diagnosis and Treatment of Reading and Writing Problems	3
EDUC	3470	Technological Assistance, Curriculum and Materials for Teaching Students with Disabilities	3
EDUC	3570	Strategies, Methods and Techniques for Teaching Students with Disabilities	3

Major Requirements - 18 credits

EDUC	2053	Nature and Needs of Students with Autism	3
EDUC	2055	Psycho-social Aspects of Students with Autism	3
EDUC	2057	Communication Problems and Methods for Students with Autism	3
EDUC	3053	Diagnosis, Evaluation and Assessment Techniques for Students with Autism	3
EDUC	3054	Curriculum and Teaching Methods for Students with Autism	3
EDUC	4010	Managing Behavior of Students with Autism	3

Students in the Bachelor of Arts Program in Special Education are exempt from taking the courses EDUC 4050 and 3013.

Special Education in the Deaf and Partially Deaf

The Ponce Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SPECIAL EDUCATION IN THE DEAF AND PARTIALLY DEAF

General Education Requirements		54 credits
Core Course Requirements		37 credits
Special Education Requirements		27 credits
Major Requirements		18 credits
Elective Courses		3 credits
	Total	139

General Education Requirements - 54 credits

Fifty-four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

Core Course Requirements - 37 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013W	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Students of the Bachelor of Arts in Special Education are exempt from taking the core courses EDUC 4050 and 3013.

Special Education Requirements - 27 credits

EDUC	2905	Nature and Needs of the Students with Mental Retardation and Emotional Disturbances	3
EDUC	2906	Nature and Needs of Students with Specific Learning Problems, ADD and ADHD	3
EDUC	3140	Language and Reading	3
EDUC	3270	Educational Diagnosis, Evaluation, and Assessment for Students with Disabilities	3
EDUC	3290	Classroom Management	3
EDUC	3420	Curricular Content, Diagnosis and Treatment of Learning Problems in Mathematics	3
EDUC	3440	Curricular Content, Diagnosis and Treatment of Reading and Writing Problems	3
EDUC	3470	Technological Assistance, Curriculum and Materials for Teaching Students with Disabilities	3
EDUC	3570	Strategies, Methods and Techniques for Teaching Students with Disabilities	3

Major Requirements - 18 credits

EDUC	2907	Nature and Needs of the Deaf and Partially Deaf Student	3
EDUC	2909	Sign Language in the Context of the Deaf and Partially Deaf Culture	3
EDUC	2911	Curriculum, Methodology and Materials for Teaching the Deaf and Partially Deaf Student	3
EDUC	3581	Methods of Teaching Reading and the Prepartation of Materials for the Deaf and Partially Deaf Student	3
EDUC	3585	Language Development in the Deaf and Partially Deaf: Theory and Practice	3
EDUC	4025	Evaluation Methods, Alternate Evaluation, Diagnosis and Assessment of the Deaf and Partially Deaf Student	3

Teaching of English as a Second Language at the Elementary Level

The Aguadilla, Barranquitas, Fajardo, Guayama, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN THE TEACHING OF ENGLISH AS A SECOND LANGUAGE AT THE ELEMENTARY LEVEL

General Education Requirements		51 credits
Core Course Requirements		39 credits
Major Requirements		28 credits
Elective Courses		3 credits
	Total	121

Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students are required to have taken the courses GEEN 2311, 2312 and 2313. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

Core Course Requirements - 39 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013E	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 28 credits

ENGL	3007	Advanced Composition	3
ENGL	3073	Introduction to Linguistics	3
ENGL	3310	Advanced Oral Communication	3
ENGL	3320	Grammatical Structure of English	3
ENGL	3325	Fundamentals of Phonetics	3
ENGL	3330	Comparative Analysis of English and Spanish	3
ENGL	3440	Children's Literature in English	3
ENGL	4073	Acquisition of English as a Second Language	3
EDUC	3187	English Curriculum, Teaching and Assessment at the Elementary Level (K-6)	4

Teaching of English as a Second Language at the Secondary Level

The major in the teaching of English as a second language at the secondary level is based on the fundamental developmental principles that individuals are capable of thinking, analyzing and evaluating their learning processes. It is expected that the graduates of this Program will be able to evaluate themselves through constant reflection. For this reason, the Program for the teaching of English as a second language at the secondary level has as its base the accepted fundamentals, theories and methodologies as well as their application in the classroom. This permits

graduates from this Program to incorporate innovative technology for teaching and evaluation into the classroom. They will keep up-to-date with the curricular guides regarding changes and adjustments that should be made when the student population they are attending requires it.

This Program is designed with the goal of providing the theoretical base and the practical training needed by future teachers of English in secondary schools. This implies knowledge of:

1. The theory, methodology and application of curricular design.
2. The design of materials in English as a second language.
3. The theory and application of linguistics, the acquisition of English as a second language, the phonetics of United States English and the four language arts.
4. A comparative analysis of English and Spanish.
5. Evaluation and assessment in the classroom.
6. Adolescent literature in English.
7. Children's literature in English.
8. A solid base in writing, oral communication, grammar and the literary genres in English.

The Aguadilla, Arecibo, Barranquitas, Guayama, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Arecibo Campus is also authorized to offer this Program through distance learning.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN THE TEACHING OF ENGLISH AS A SECOND LANGUAGE AT THE SECONDARY LEVEL

General Education Requirements		51 credits
Core Course Requirements		39 credits
Major Requirements		34 credits
Elective Courses		3 credits
	Total	127

General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students are required to have taken the courses GEEN 2311, 2312 and 2313. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

Core Course Requirements - 39 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013D	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements – 34 credits

ENGL	3007	Advanced Composition	3
ENGL	3073	Introduction to Linguistics	3
ENGL	3310	Advanced Oral Communication	3
ENGL	3320	Grammatical Structure of English	3
ENGL	3325	Fundamentals of Phonetics	3
ENGL	3330	Comparative Analysis of English and Spanish	3
ENGL	3350	Analysis of Literary Genres	3
ENGL	3400	Adolescent Literature in English	3
ENGL	4073	Acquisition of English as a Second Language	3
EDUC	3188	English Curriculum, Teaching and Assessment at the Secondary Level	4

Students will select an additional three credit, 3000 or 4000 level literature course in English.

Minor in Religion and Education

The Arecibo Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN RELIGION AND EDUCATION - 26 credits

RELI	2013	Living Religion	3
RELI	3013	The Old Testament	3
RELI	3024	The New Testament	3
RELI	3326	History of Christianity	3
RELI	4100	Christian Education	3
RELI	4300	Christian Education Curriculum	3
RELI	4353	Philosophy of Religion	3
EDUC	2031	Developmental Psychology	3
EDUC	3013	Teaching Strategies	2

Electronics Technology (A.S. and B.S.)

Associate Program

The program for the Associate of Science Degree in Electronic Technology is designed to offer students the skills and knowledge necessary to compete successful in the field of electronics in industry as well as in the government. The program also has the purpose of preparing students to continue studies at the baccalaureate level in the area of electronics.

To be officially admitted to this program, students must meet the following requirements:

1. Have a minimum high school general grade index of 2.50 or equivalent.
2. Have obtained a minimum of 550 points in mathematics in the College Board achievement test.

Students who do not meet the previous requirements may be admitted to the program, if upon completing their first year of university studies they have achieved a minimum grade index of 2.50. These students also must have passed the course GEMA 1200 - Fundamentals of Algebra.

The Aguadilla and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF SCIENCE DEGREE IN ELECTRONICS TECHNOLOGY

General Education Requirements		21 credits
Major Requirements		43 credits
Prescribed Distributive Requirements		8 credits
	Total	72

General Education Requirements - 21 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 43 credits

COMP	2110	Introduction to Computer Science	3
ELEC	2170	Electronic Drawing	3
ELEC	2351	Electric Circuits I	4
ELEC	2352	Electric Circuits II	4
ELEC	3141	Logic Circuits I	4
ELEC	3191	Electronic Circuits I	4
ELEC	3192	Electronic Circuits II	4
ELEC	3420	Electrical Systems	4
ELEC	3490	Industrial Electronics	4
PHYS	3012	Physics for Telecommunications	4
MATH	1500	Precalculus	5

Prescribed Distributive Requirements - 8 credits

Eight credits from the following courses

ELTE	2210	Communications Technology	4
ELTE	2250	Instrumentation Technology	4
ELTE	2590	Control Technology	4
ELTE	2910	Practice in Industry	4
ELEC	3142	Logic circuits II	4
ELEC	4140	Microprocessors	4

Bachelor's Program

The Bachelor of Science Degree in Electronics Technology is designed to develop student knowledge and skills in the electronics field so that when they complete the program they will be competent professionals in one of the fields of greatest demand in government and industry. The Program also aims to prepare students for graduate studies.

To be officially admitted to this Program the students must meet the following requirements:

1. Have a general grade point average of at least 2.50 in high school or its equivalent.
2. Have at least 550 in the mathematics achievement part of the College Board examination.

Note: Students who do not comply with the above-mentioned requirements may be admitted to the Program if, in their first year of college studies, they have a grade point average of at least 2.50.

The Aguadilla and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN ELECTRONICS TECHNOLOGY

General Education Requirements		42 credits
Major Requirements		66 credits
Prescribed Distributive Requirements		12 credits
Elective Courses		6 credits
	Total	126

General Education Requirements - 42 credits

Forty-two (42) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students are exempt from taking courses in the Basic Skills in Mathematics category (GEMA 1000 and 1200 and GEIC 1010.

Major Requirements - 66 credits

ELEC	2120	Industrial Safety	2
ELEC	2170	Electronic Drawing	3
ELEC	2351	Electric Circuits I	4
ELEC	2352	Electric Circuits II	4
ELEC	3141	Logic Circuits I	4
ELEC	3191	Electronic Circuits I	4
ELEC	3192	Electronic Circuits II	4
ELEC	3490	Industrial Electronics	4
ELEC	4050	Instrumentation	4
ELEC	4211	Communications I	4
ELEC	4390	Control Systems Technology	4
COMP	2110	Introduction to Computer Science	3
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
PHYS	3311	Physics for Engineers I	4
PHYS	3312	Physics for Engineers II	4

Prescribed Distributive Requirements - 12 credits

Twelve (12) credits from the following courses:

ELEC	3142	Logic Circuits II	4
ELEC	3420	Electrical Systems	4
ELEC	3974	Solar Energy	4
ELEC	4080	Operational Amplifiers	4
ELEC	4140	Microprocessors	4
ELEC	4212	Communications II	4
ELEC	4215	Telecommunications Networks	4
ELEC	4440	Logical Programmable Controllers	4
ELEC	4450	Robotics and Automation	4
ELEC	4910	Professional Practice	4

Minor in Electronics

The Minor in Electronics is designed to provide the student of any discipline a general base on electrical and logical circuits.

The San Germán Campus is authorized to offer this minor.

Requirements for the Minor in Electronics - 21 credits

MATH	1500	Pre Calculus	5
ELEC	2351	Electric Circuits I	4
ELEC	2352	Electric Circuits II	4
ELEC	3141	Logic Circuits I	4
ELEC	3191	Electronic Circuits I	4

Engineering

Four engineering programs are offered: Computer Engineering, Electrical Engineering, Industrial Engineering and Mechanical Engineering.

General Admission Requirements

To be admitted to one of the Engineering programs applicants must meet have an admission index of 1,000 points or above and have graduated from high school or its equivalent with a minimum average of 2.50.

Students who do not initially meet the minimum admission requirements may be admitted to these programs, if prior to taking their first course of their major, they have a minimum grade point index of 2.00, have obtained at least a C in the course Precalculus (MATH 1500) or equivalent, and have been recommended by the appropriate engineering department director.

Transfer students, either from within the University system or from other accredited institutions and students wishing to change their major may be considered for admission to these engineering programs once they have passed Precalculus (MATH 1500) or its equivalent with a minimum grade of C and are recommended by the appropriate department director.

Student admitted to the engineering programs will graduate according to the program and the regulations of the General Catalog in force when they were admitted to the program or as any subsequent catalog.

Engineering students with 500 points or more in the Mathematics test of College Board's Evaluation and Admissions Tests (PEAU in Spanish) are exempt from taking the course GEMA 1200 - Fundamentals of Algebra.

Students will take the intermediate level Communication Skills courses in English (GEEN 1201, 1202 and 1203) or the advanced level (GEEN 2311, 2312 and 2313).

Pre-engineering

The Pre-engineering program allows students to begin their engineering studies at the different Campuses of Inter American University. The Program emphasizes preparation in mathematics, sciences and languages. Students who successfully complete the program may register in the School of Engineering of the Bayamón Campus.

For admission to the Pre-engineering program, students must have an admission index of 1,000 points or more in the College Board tests and have graduated from high school or its equivalentwith a minimum general grade point index of 2.50. Pre-Engineering students with 550 points or more in the Mathematics test of College Board are exempt from taking the course GEMA 1200 - Fundamentals of Algebra.

Students admitted to the Pre-Engineering Program must maintain a minimum average grade point index of 2.00 throughout their period of studies. Students whose index falls below 2.00 will be dropped from the Program. Students interested in continuing studies in the School of Engineering of the Bayamón Campus must complete the Pre-Engineering Program with the general grade point index of at least 2.00, pass the Precalculus course (MATH 1500) or equivalent with a minimum grade of C, and be recommended by the director of the corresponding engineering department.

All campuses are authorized to offer the Pre-Engineering Program.

REQUIREMENTS FOR THE PRE-ENGINEERING PROGRAM

General Education Requirements		30 credits
Engineering and Related Course Requirements		25 credits
	Total	55

General Education Requirements - 30 credits

Nine credits in Spanish and nine in English are required.

GESP	1101	Literature and Communication: Narrative and Essay	3
GESP	1102	Literature and Communication: Poetry and Theater	3
GESP	2203	Vision of the World through Literature	3
GEEN	1201	Development of English through Reading I	3
GEEN	1202	Development of English through Reading II	3
GEEN	1203	Development of English through Writing (PEAU 500-599 in English)	3
		or	
GEEN	2311	Reading and Writing	3
GEEN	2312	Literature and Writing	3
GEEN	2213	Reading and Research (PEAU 600 or better in English)	3
GEIC	1010	Information and Computer Literacy	3
GEMA	1200	Fundamentals of Algebra	3

Two courses from the following are required:

GECF	1010	The Christian Faith	3
GEHS	2010	Historical Process of Puerto Rico	3
GEST	2020	Science, Technology and Environment	3

Engineering and Related Course Requirements - 25 credits

CHEM	2115	General Chemistry for Engineers	4
ENGR	1100	Introduction to Engineering	3
ENGR	2120	Introduction to Computer Engineering	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4

Computer Engineering (B.S.)

The Bachelor of Science in Computer Engineering Program includes the design of computers and systems based on computers. It focuses in the study of software and hardware and the communication and interaction between them. The program includes the study and the application of theory, principles and practice of electrical engineering and the mathematics to solve problems involving the design of computers, devices and programs that interact with users and with each other.

Retention Requirements

1. Meet all Academic Progress Requirements established in the General Catalog.
2. Pass all major and prescribed distributive courses with a minimum grade of C.
3. Have passed all prerequisite courses before taking continuation courses.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN COMPUTER ENGINEERING

General Education Requirements		39 credits
Core Course Requirements		59 credits
Major Requirements		57 credits
Prescribed Distributive Requirements		12 credits
Elective Courses		3 credits
	Total	170

General Education Requirements - 39 credits

Thirty-nine (39) credits are required as explained in the Engineering Program. Students are exempt from taking GEMA 1200 in the Mathematics category and will take only the course GEPE 4040 in the Philosophic and Esthetic Thought category. In the Historic and Social Context category they will take two courses, one of which will be GEHS 2010.

Core Course Requirements - 59 credits

ENGR	1100	Introduction to Engineering	3
ENGR	2220	Computerized Engineering Graphics	3
ENGR	3200	Probability and Statistics	3
ENGR	3300	Engineering Economics	3
ENGR	3340	Foundations of Statics and Dynamics	3
ENGR	3343	Thermal and Fluid Sciences	4
ENGR	3350	Material Sciences	3
ENGR	3500	Professional Ethics for Engineers	2
CHEM	2115	General Chemistry for Engineers	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3250	Calculus III	3
MATH	3350	Linear Algebra	3
MATH	3400	Differential Equations	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

Major Requirements - 57 credits

COEN	2210	Introduction to Programming	4
COEN	2220	Advanced Programming	4
COEN	2310	Discrete Mathematics for Computer Engineering	3
COEN	3410	Software Design and Construction	3
COEN	3510	Operating Systems	4
COEN	4510	Computer Architecture	4
ELEN	3301	Electric Circuits I	4
ELEN	3302	Electric Circuits II	4
ELEN	3311	Electronics I	4
ELEN	3320	Logic Circuit	4
ELEN	3420	Signals and Systems	4
ELEN	4010	Microcontrollers	4
ELEN	4410	Digital Systems Design	4
ELEN	4610	Analog Communication	4
ELEN	4811	Project Design in Electrical Engineering and Computers I	2
ELEN	4812	Project Design in Electrical Engineering and Computers II	1

Prescribed Distributive Requirements - 12 credits

Students will select 12 credits from the following courses:

COEN	4412	Design of Interfaces of User and Prototypes	4
COEN	4413	Design of Expert Systems	4
COEN	4420	Computerized Information Systems Design	4
COEN	4530	Design and Construction of Compilers	4
COEN	4535	Integrated Computer System	4
COEN	4540	Parallel Computation Design	4
COEN	4910	Practice in Computer Engineering	4
ELEN	3312	Electronics II	4
ELEN	4617	Communication Data Networks	4

Electrical Engineering (B.S.)

The Bachelor of Science Degree Program in Electrical Engineering includes the study and design of production systems and the transmission and measurement of electrical signals. It emphasizes the analysis, design, implementation and test of these systems. In the curriculum there are three submajors: Communication Systems, Control Systems and Electronic Systems. The Electrical Engineering Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)" (www.abet.org).

Description of Submajors

1. Communication Systems
   The communications systems are electrical systems that generate, transmit and distribute information.
2. Control Systems
   The control systems consist of systems and subsystems that, assembled to each other, control a certain plant or process.
3. Electronic Systems
   The purpose of the electronic systems is to extract, store, transport, or process the information in a signal.

These programs of study aim to enable the student to practice electrical engineering at a professional level.

Academic Progress Requirements

1. Meet all Academic Progress Requirements established in the General Catalog.
2. Pass all major and prescribed distributive courses with a minimum grade of C.
3. Have passed all prerequisite courses before taking continuation courses.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN ELECTRICAL ENGINEERING

General Education Requirements		39 credits
Core Course Requirements		60 credits
Major Requirements		57 credits
Submajor Requirements		12 credits
Elective courses		3 credits
	Total	171

General Education Requirements - 39 credits

Thirty-nine (39) credits are required as explained in the Engineering Program. Students are exempt from taking GEMA 1200 in the Mathematics category and will take only the course GEPE 4040 in the Philosophic and Esthetic Thought categoryif they have obtained at least 550 points in the mathematics achievement test of the Evaluation and Admissions Tests of College Board. In the Historic and Social Context category they will take two courses, one of which will be GEHS 2010.

Core Course Requirements - 60 credits

ENGR	1100	Introduction to Engineering	3
ENGR	2120	Introduction to Engineering Computing	4
ENGR	2220	Computerized Engineering Graphics	3
ENGR	3200	Probability and Statistics	3
ENGR	3300	Engineering Economics	3
ENGR	3340	Foundations of Statics and Dynamics	3
ENGR	3343	Thermal and Fluid Sciences	4
ENGR	3350	Material Sciences	3
ENGR	3500	Professional Ethics for Engineers	2
CHEM	2115	General Chemistry for Engineers	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3250	Calculus III	3
MATH	3400	Differential Equations	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

Major Requirements - 57 credits

ELEN	3301	Electric Circuits I	4
ELEN	3302	Electric Circuits II	4
ELEN	3311	Electronics I	4
ELEN	3312	Electronics II	4
ELEN	3320	Logic Circuits	4
ELEN	3351	Electromagnetism I	3
ELEN	3352	Electromagnetism II	3
ELEN	3420	Signals and Systems	4
ELEN	4010	Microcontrollers	4
ELEN	4327	Measurements and Instrumentation	4
ELEN	4351	Power Systems Analysis I	4
ELEN	4385	Electric Machinery	4
ELEN	4509	Control Systems	4
ELEN	4610	Analog Communication	4
ELEN	4811	Project Design in Electrical Engineering and Computers I	2
ELEN	4812	Project Design in Electrical Engineering and Computers II	1

Submajor Requirements - 12 credits

Students are required to take at least one of the following submajors:

Communication Systems (Electrical Engineering)

Communication Systems – 12 credits

ELEN	4611	Microwave and Radio Frequency Engineering I	4
ELEN	4612	Microwave and Radio Frequency Engineering II	4

ELEN	4613	Optical Communications	4
ELEN	4614	Digital Communication	4
ELEN	4615	Digital Signal Processing	4
ELEN	4616	Antenna Design	4
ELEN	4617	Data Communication Networks	4
ELEN	4618	Wireless and Cellular Communication	4
ELEN	4910	Electrical Engineering Practical Experience	4

Control Systems (Electrical Engineering)

Control Systems - 12 credits

ELEN	4513	Digital Control Systems	4
ELEN	4514	Robotics	4
ELEN	4515	Process Control	4
ELEN	4516	Computer Aided Control System Design	4
ELEN	4917	Neural Networks Applied to Control Systems	4
ELEN	4518	Automation	4
ELEN	4910	Electrical Engineering Practical Experience	4

Electronic Systems (Electrical Engineering)

Electronic Systems - 12 credits

ELEN	4410	Digital Systems Design	4
ELEN	4413	Analog Filter Design	4
ELEN	4414	Electronic Design	4
ELEN	4415	Power Electronics	4
ELEN	4416	Design of Microprocessor Based Systems	4
ELEN	4910	Electrical Engineering Practical Experience	4

Industrial Engineering (B.S.)

The Bachelor of Science Degree in Industrial Engineering includes the study of systems composed of people, materials and equipment. Emphasis is given to the design, improvement and installation of these systems with the purpose of increasing productivity, profit and effectiveness. This Program aims to prepare students to practice professional engineering. This Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)" (www.abet.org).

Retention Requirements

1. Meet all Academic Progress Requirements established in the General Catalog.
2. Pass all major and prescribed distributive courses with a minimum grade of C.
3. Have passed all prerequisite courses before taking continuation courses.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN INDUSTRIAL ENGINEERING

General Education Requirements		39 credits
Core Course Requirements		64 credits
Major Requirements		51 credits
Prescribed Distributive Requirements		12 credits
Electives Courses		3 credits
	Total	169

General Education Requirements - 39 credits

Thirty-nine (39) credits are required as explained in the Engineering Program. Students are exempt from taking GEMA 1200 in the Mathematics category and will take only the course GEPE 4040 in the Philosophic and Esthetic Thought category. In the Historic and Social Context category they will take two courses, one of which will be GEHS 2010.

Core Course Requirements - 64 credits

ENGR	1100	Introduction to Engineering	3
ENGR	2120	Introduction to Engineering Computing	4
ENGR	2220	Computerized Graphics for Engineering	3
ENGR	3200	Probability and Statistics	3
ENGR	3300	Engineering Economics	3
ENGR	3340	Foundations of Statics and Dynamics	3
ENGR	3343	Thermal and Fluid Sciences	4
ENGR	3350	Material Sciences	3
ENGR	3360	Fundamentals of Electronics and Instrumentation	4
ENGR	3500	Professional Ethics for Engineers	2
CHEM	2115	General Chemistry for Engineers	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3400	Differential Equations	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

One of the following courses is required:

MATH	3250	Calculus III	3
		or	
MATH	3350	Linear Algebra	3

Major Requirements - 51 credits

INEN	3411	Optimization I	3
INEN	3430	Advanced Statistics	3
INEN	3550	Cost Analysis and Control	3
INEN	3650	Systems Simulation	3
INEN	3710	Work Measurement	4
INEN	3970	Topics in Industrial Engineering	1
INEN	4300	Quality Measurement and Analysis	4
INEN	4400	Ergonomics and Design of Workstations	4
INEN	4490	Operations Planning and Control	3
INEN	4550	Facility Layout and Design	3
INEN	4560	Industrial Safety	3
INEN	4590	Project Management	3
INEN	4600	Automated Manufacturing	3
INEN	4700	Design of Experiments	3
INEN	4810	Comprehensive Design Experience	3
INEN	4970	Seminar in Industrial Engineering	1
MECH	4140	Manufacturing Process	4

Prescribed Distributive Requirements - 12 credits

Twelve credits from the following courses:

INEN	3412	Optimization II	3
INEN	3500	Sustainable Engineering and Industrial Ecology	3
INEN	4510	Decision-Making under Uncertainty	3
INEN	4520	Systems Reliability	3
INEN	4530	Validation of Pharmaceutical Processes	3
INEN	4545	Supply Chain Management	3
INEN	4570	Stochastic Processes	3
INEN	4580	Resources Programming and Assignment	3
INEN	4611	Lean Six Sigma	3
INEN	4612	Advanced Lean Six Sigma	3
INEN	4915	Practice in Industrial Engineering	3
MECN	4150	Manufacturing Design	3

Mechanical Engineering (B.S.)

The Bachelor of Science Program in Mechanical Engineering includes the study of transforming energy into a form that can be controlled and used for the production of goods and services. Emphasis is given to the analysis, design, instruction and control of equipment, instruments and mechanical systems. The Program aims to prepare students to practice mechanical engineering at the professional level. This Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)" (www.abet.org).

Academic Progress Requirements

1. Meet all Academic Progress Requirements established in the General Catalog.
2. Pass all major and prescribed distributive courses with a minimum grade of C.
3. Have passed all prerequisite courses before taking continuation courses.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MECHANICAL ENGINEERING

General Education Requirements		39 credits
Core Course Requirements		57 credits
Major Requirements		61 credits
Prescribed Distributive Requirements		9 credits
Elective Courses		3 credits
	Total	169

General Education Requirements - 39 credits

Thirty-nine (39) credits are required as explained in the Engineering Program. Students are exempt from taking GEMA 1200 in the Mathematics category and will take only the course GEPE 4040 in the Philosophic and Esthetic Thought category. In the Historic and Social Context category they will take two courses, one of which will be GEHS 2010.

Core Course Requirements - 57 credits

ENGR	1100	Introduction to Engineering	3
ENGR	2120	Introduction to Engineering Computing	4
ENGR	2220	Computerized Engineering Graphics	3

ENGR	3200	Probability and Statistics	3
ENGR	3300	Engineering Economics	3
ENGR	3350	Material Sciences	3
ENGR	3360	Fundamentals of Electronics and Instruments	4
ENGR	3500	Professional Ethics for Engineers	2
CHEM	2115	General Chemistry for Engineers	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3250	Calculus III	3
MATH	3400	Differential Equations	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

Major Requirements - 61 credits

MECN	3005	Vectorial Mechanics for Engineers: Statics	3
MECN	3010	Vectorial Mechanics for Engineers: Dynamics	3
MECN	3110	Fluid Mechanics and Applications	4
MECN	3135	Solid Mechanics	4
MECN	3500	Numerical Methods for Engineers	3
MECN	4100	Mechanical Vibrations	4
MECN	4110	Mechanisms Design	3
MECN	4121	Design of Machine Elements I	3
MECN	4122	Design of Machine Elements II	3
MECN	4140	Manufacturing Processes	4
MECN	4201	Thermodynamics I	3
MECN	4201	Thermodynamics II	3
MECN	4210	Heat Transfer	3
MECN	4300	Engineering Materials	4
MECN	4405	Engineering Analysis Assisted by Computer	3
MECN	4600	Mechanical Measurements and Instrumentation	4
MECN	4610	Automatic Control Systems	3
MECN	4810	Design of Project in Mechanical Engineering	4

Prescribed Distributive Requirements - 9 credits

Nine additional credits from the following Mechanical Engineering courses are required.

MECN	3140	Power Systems of Fluids	3
MECN	3160	Dynamics of Motor Vehicles	3
MECN	3200	Mechatronics	3
MECN	3350	Efficiency and Airplane Design	3
MECN	3400	Analysis and Design of Aerospace Missions	3
MECN	3600	Gas Turbines and Propulsion Systems	3
MECN	4130	ComputerAided Manufacturing Design	3
MECN	4150	Manufacturing Design	3
MECN	4220	Design of Thermal Systems	3
MECN	4230	Air Conditioning and Refrigeration	3
MECN	4240	Solar Energy Applications	3
MECN	4310	Plastic Engineering	3
MECN	4320	Metal Fatigue	3
MECN	4330	Corrosion Control	3
MECN	4340	Fracture Mechanics	3
MECN	4350	Aerospace Structures and Materials	3
MECN	4620	Dynamics and Control of Aerospace Vehicles	3

MECN	4820	Aerospace Experience	3
MECN	4910	Practice in Mechanical Engineering	3

Minor in Aerospace Engineering

The Bayamón Campus is authorized to offer this minor.

Requirements for the Minor in Aerospace Engineering - 18 credits

MECN	3350	Efficiency and Airplane Design	3
MECN	3400	Analysis and Design of Aerospace Missions	3
MECN	3600	Gas Turbines and Propulsion Systems	3
MECN	4350	Aerospace Structures and Materials	3
MECN	4620	Dynamics and Control of Aerospace Vehicles	3
MECN	4820	Aerospace Experience	3

English (B.A.)

The objective of the Bachelor of Arts Program is to prepare professionals in different fields in the public sector as well as in the private sector with a mastery of English as an instrument of thought, communication and literary expression. This Program allows students to choose between two specializations: a) the literature of different cultures and b) communication and writing.

This humanistic program aims to enable students to participate and contribute as responsible persons in our changing, global and heterogeneous society.

In addition, the Program aims to prepare professionals skilled in the use of technology as a resource in research.

The Program is designed to provide students with an academic preparation to continue on to graduate studies or continue their professional development.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN ENGLISH

General Education Requirements		48 credits
Core Course Requirements		15 credits
Specialization Requirements		15 credits
Prescribed Distributive Requirements		18 credits
Elective Courses		15 credits
	Total	111

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students of this Program will take GEEN 2311, 2312 and 2313.

Core Course Requirements - 15 credits

ENGL	3007	Advanced Composition	3
ENGL	3310	Advanced Oral Communication	3
ENGL	3320	Fundamentals of Grammar	3
ENGL	3350	Analysis of Literary Genres	3
ENGL	4800	Research in English	3

Specialization Requirements

One of the following options is required

Literature (English)

ENGL	3410	Analysis of Major North American Writers	3
ENGL	3420	Analysis of Selected Works of British Writers	3
ENGL	3435	Puerto Rican Voices	3
ENGL	4400	The Novel	3
ENGL	4700	Literature since 1945	3

Writing and Communication (English)

ENGL	3510	Popular Culture	3
ENGL	3520	Cross Cultural Studies	3
ENGL	3025	Writing of Professional Documents	3
ENGL	4030	Creative Writing	3
ENGL	4015	Translation Workshop	3

Prescribed Distributive Requirements - 18 credits

Eighteen (18) additional credits in English selected from the courses of the other option, or from the following courses:

ENGL	2076	Reading and Writing of Technical Texts	3
ENGL	3073	Introduction to Linguistics	3
ENGL	3325	Fundamentals of Phonetics	3
ENGL	3330	Comparative Analysis of English and Spanish	3
ENGL	3400	Literature for Young Readers	3
ENGL	3440	Children's Literature in English	3
ENGL	3850	The Short Story	3
ENGL	3863	Poetry	3
ENGL	4000	Shakespeare	3
ENGL	4014	Modern Theater	3
ENGL	4400	The Novel	3
ENGL	4073	Acquisition of English as a Second Language	3
ENGL	4083	Introduction to Sociolinguistics	3
ENGL	4440	Caribbean Voices	3
ENGL	4950	Integrative Seminar	3

Note: GEEN 2311, 2312 and 2313 are required for admission to this Program.

Minor in Bilingual Oral and Written Communication

The San Germán Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN BILINGUAL ORAL AND WRITTEN COMMUNICATION

Core Courses		18 credits
Prescribed Distributive Requirements		3 credits
	Total	21

Core Courses - 18 credits

ENGL	3007	Advanced Composition	3
ENGL	3025	Writing of Professional Documents	3
ENGL	3310	Advanced Oral Communication	3

SPAN	3015	Oral Communication	3
SPAN	3020	Writing Workshop	3
SPAN	3025	Professional Document Writing	3

Prescribed Distributive Requirements - 3 credits

ENGL	4015	Translation Workshop	
		or	
SPAN	4015	Translation Workshop	3

Minor in Oral and Written Communication (English)

The San Germán Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN ORAL AND WRITTEN COMMUNICATION

Core Courses		15 credits
Prescribed Distributive Requirements		3 credits
	Total	18

Core Courses - 15 credits

ENGL	2060	Conversation and Grammar Review	3
ENGL	2075	Technical Literature	3
ENGL	3007	Advanced Composition	3
ENGL	3025	Writing of Professional Documents	3
ENGL	3310	Advanced Oral Communication	3

Prescribed Distributive Requirements - 3 credits

An elective course in English at the 3000 or 4000 level.

Entrepreneurial and Managerial Development (B.B.A.)

The Entrepreneurial and Managerial Development Program is designed to provide the student with knowledge of the principles that govern the commercial development of companies and their business activities. The Bachelor's in Business Administration Program with a major in Entrepreneurial and Managerial Development seeks to prepare professionals with the skills and knowledge necessary to explore self-employment as a feasible alternative in their professional career or to occupy a position as a business manager.

The student is presented with the concepts, principles and fundamental practices of the different disciplines that include the development and the administration of companies and entrepreneurialism, such as: management, entrepreneurialism, accounting, marketing, economics, finance, quantitative methods and human resources.

Students must pass the required core and major courses with a minimum grade of C.

The admission requirements for the Entrepreneurial and Managerial Practice or for Managerial Simulation are the following:

1. Have the approval of the Department Director or the Practice Coordinator.
2. Maintain a minimum index of 2.25 in the major.
3. Have approved courses ENTR 4400 and ACCT 1162.

The Entrepreneurial and Managerial Practice course can be validated for students who make such a request and have satisfactory fulfilled the established requirements. Such validation will be subject to students' presentation of the following:

1. A formal request to the Director of the Academic Department showing evidence of having held a position as a businessman or manager uninterruptedly for at least three years.
2. A Portfolio showing their professional performance during employment.
3. An interview coordinated by the Director of the Academic Department and to be held with faculty members.

All campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN ENTREPRENEURIAL AND MANAGERIAL DEVELOPMENT

General Education Requirements		48 credits
Core Course Requirements		41 credits
Major Requirements		27 credits
Elective Courses		3 credits
	Total	119

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements - 41 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Communication Workshop in Spanish	
		or	
OMSY	3040	Communication Workshop in English	3

Major Requirements - 27 credits

ENTR	2200	Fundamentals of Entrepreneurship	3
ENTR	3900	Entrepreneurial and Managerial Strategies	3
ENTR	4400	Design and Development of a Business Plan	3
ENTR	4910	Entrepreneurial and Managerial Practicum	
		or	
ENTR	4920	Entrepreneurial and Managerial Simulation	3
BADM	2650	Human Behavior in the Organization	3
BADM	3313	Mercantile Law	3
BADM	3330	Human Resources Management	3
BADM	4340	Protective Labor Legislation	3
BADM	4800	Operations Management	3

Additional Notes:

1. The selection of the practice center must be validated by the professor, as well as the procedure for submitting the documentation required by the Institution.
2. Satisfactory work experience may be validated for practice (ENTR 4910) for students, who request it in writing to the director of the academic department. This confirmation will be subject to whether:
   a. The student has been working full-time for a minimum period of two consecutive years in a company within three years immediately prior to the date of the request.
   b. The student submits a certification and letter from the employer or the Office of Human Resources of the work place that specifies:
      1) Years of experience
      2) Period of time in which he was employed
      3) Position or positions occupied
      4) Description of tasks
      5) Copies of the evaluations received
      6) Any other evidence of his professional performance during the time of employment.

Minor in Electronic Commerce

The minor in Electronic Commerce aims to prepare students so that they may apply the basic concepts of electronic commerce and their function within the globalized economy. The student will identify the uses of Internet for businesses in national and international markets.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE MINOR IN ELECTRONIC COMMERCE – 27 credits

ECOM	1210	Introduction to Electronic Commerce	3
ECOM	2301	Electronic Commerce Technical Infrastructure I	3
ECOM	2302	Electronic Commerce Technical Infrastructure II	3
BADM	1900	Fundamentals of Management	3
CMIS	1200	Programming Algorithms	3
CMIS	2450	Introduction to Internet in the Enterprise	3
MKTG	1210	Introduction to Marketing	3
MKTG	2220	Strategic Marketing Management	3
MKTG	2223	Consumer Behavior	3

Minor in Entrepreneurship

The Minor in Entrepreneurship offers students, of different academic disciplines, the opportunity to obtain fundamental knowledge in leadership, resource management and development of the team work that complements specialized knowledge. It likewise allows students to become a more overall professional.

The Metropolitan Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN ENTREPRENEURSHIP - 19 credits

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Foundations of Management	3
ENTR	2200	Fundamentals of Entrepreneurship	3
ENTR	2212	Social Entrepreneurism	3
MKTG	1210	Introduction to Trade	3
SBAD	3330	Human Resource Administration in Small Businesses	3

Minor in Entrepreneurial and Managerial Development

The Minor in Entrepreneurial and Managerial development allows students from any area of study to develop an enterprise mentality and the basic skills to establish their own company and administer a business effectively. It exposes students to the foundations of management, accounting, finance, statistics, economics and marketing, necessary to develop and administer a company successfully.

All campuses are authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN ENTREPRENEURIAL AND MANAGERIAL DEVELOPMENT - 25 CREDITS

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3330	Human Resource Management	3
BADM	3900	Business Information Systems	3
ENTR	2200	Fundamentals of Entrepreneurship	3
ENTR	3900	Entrepreneurial and Managerial Strategies	3
ENTR	4400	Development of a Business Plan	
		or	
MAEC	2211	Principles of Economics (Micro)	3
MKTG	1210	Introduction to Marketing	3

Minor in Music Business Management

The Minor in Music Business Management aims to develop the following competencies in graduates: to distinguish the music enterprise models, to apply music marketing methods and the basic concepts for the administration of artists, as well as to identify the legal principles and contracts related to the industry.

The Metropolitan Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN MUSIC BUSINESS MANAGEMENT – 18 credits

ENTR	2200	Fundamentals of Entrepreneurship	3
MKTG	1210	Introduction to Marketing	3
MUBA	1000	Introduction to Business in the Music Industry	3
MUBA	1100	Music Marketing	3
MUBA	1200	Principles of Treatment and Management of Artists	3
MUBA	1400	Legal Aspects in the Music Business	3

Minor in Public Management

The minor in Public Management enables the future professional to take part in decision-making that is carried out in public organizations.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE MINOR IN PUBLIC MANAGEMENT – 24 credits

BADM	1900	Foundations of Management	3
BADM	3330	Human Resource Management	3
BADM	3490	Supervision	3
BADM	3570	Administrative Auditing	3

BADM	4190	Accountability in the Public Sector	3
POLS	2088	Government of the Commonwealth of Puerto Rico	3
PUAD	3300	Government Accounting	3
PUAD	3510	Public Budget Planning	3

Entrepreneurial Development (Post Associate Degree Professional Certificate)

The Post Associate Degree Professional Certificate in Entrepreneurial Development provides the theoretical and practical foundation for the establishment, administration and development of a company of global dimensions. It promotes development in various areas, such as: the idea, planning, administration, marketing, accounting, ethics and technology. Develops professionals qualified in the critical evaluation of project needs, the use of technology in a local and international frame, considering the diverse factors such as economy, ethics and globalized culture.

Nonconventional educational methods will be used, as well as the traditional modalities or classroom courses.

Admission Requirements

To be admitted, students must:

1. Have at least an associate degree from an accredited educational institution.
2. Comply with the University's admissions requirements.

Certification Requirements

In order to fulfill the Certification Requirements of Inter American University of Puerto Rico students must:

1. Complete the Certificate Requirements.
2. Obtain a minimum general average of 2.00 points.

The Ponce Campus is authorized to offer this Certificate. It is also authorized to offer this Certificate through distance learning.

REQUIREMENTS FOR THE POST ASSOCIATE DEGREE PROFESSIONAL CERTIFICATE IN ENTREPRENEURIAL DEVELOPMENT

Core Course Requirements	12 credits

Core Course Requirements - 12 credits

ENDE	1100	Introduction to Entrepreneurial Development	2
ENDE	3315	Fundamental Procedures in Businesses Establishment	3
ENDE	3316	Businesses Administration	3
ENDE	3320	Electronic Commerce in Entrepreneurial Development	4

Environmental Sciences (B.S.)

The Bachelor of Science Degree in Environmental Sciences is directed to those persons interested in working as professionals in the area of the environmental science in pollution control in water, soil and air, and in the conservation of land and water natural resources. It aims to provide students with the necessary skills to perform in these two environmental areas in government as well as in private business or industry. The Program offers knowledge on its legal basis and gives training in methodology skills and techniques. Emphasis will be placed on the perception of nature as a system. To receive the Bachelor of Science Degree in Environmental Sciences, students must pass the internship with a minimum grade of C.

The Ponce Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN ENVIRONMENTAL SCIENCES

General Education Requirements		48 credits
Major Requirements		77 credits
Elective Courses		3 credits
	Total	128

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. In addition, they will take course GEST 3030 in the Scientific and Technological Context category.

Major Requirements - 77 credits

EVSC	1110	Introduction to Environmental Sciences	3
EVSC	2210	Environmental Policies, Laws and Regulations	3
EVSC	2500	Air Quality	2
EVSC	3001	Management and Conservation of Natural Resources	4
EVSC	3600	Waste Management	3
EVSC	3603	Health and Occupational Safety in Environmental Protection	3
EVSC	3713	Use of Land and Geographic Information Systems	3
EVSC	4504	Use, Conservation and Quality of Water	3
EVSC	4910	Internship in Environmental Sciences	3
EVSC	4955	Integration Seminar in Environmental Sciences	1
BIOL	1101	Modern Biology I	3
BIOL	1102	Modern Biology II	3
BIOL	1103	Skills Lab I	1
BIOL	2010	Fundamentals of Vegetable and Animal Biology	4
BIOL	2153	Biostatistics	3
BIOL	3105	General Microbiology	4
BIOL	3503	General Ecology	3
BIOL	3504	Environmental Health	3
CHEM	1111	General Chemistry I	4
CHEM	2112	General Chemistry II	4
CHEM	3320	Analytical Chemistry	4
MATH	1500	Precalculus	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

Environmental Technology (B.S.)

The program of Bachelor of Sciences in Environmental Technology is one interdisciplinary one that will provide to the students

The Bachelor of Science in Environmental Technology program is interdisciplinary and provides students with the fundamental knowledge and skills related to the analysis of environmental polluting agents, environmental laws, regulations and processes of evaluation. The program is designed so that the student may focus on areas such as: sampling and environmental analysis, natural resources management, environmental health, or on continuing graduate studies.

The Bayamón and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN ENVIRONMENTAL TECHNOLOGY

General Education Requirements		48 credits
Major Requirements		70 credits
Prescribed Distributive Requirements		6 credits
Elective Courses		6 credits
	Total	130

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category.

Major Requirements – 70 credits

EVTH	3010	Environmental Public Policy	3
EVTH	4020	Environmental Evaluation	3
EVTH	4910	Internship	3
EVTH	4960	Integration Seminar	1
BIOL	1101	Modern Biology I	3
BIOL	1102	Modern Biology II	3
BIOL	1103	Skills Laboratory I	1
BIOL	2010	Fundamentals of Vegetable and Animal Biology	4
BIOL	2013	Skills Laboratory II	1
BIOL	2153	Biostatistics	3
BIOL	3105	General Microbiology	4
BIOL	3503	General Ecology	3
CHEM	1111	General Chemistry I	4
CHEM	2112	General Chemistry II	4
CHEM	2221	Organic Chemistry I	4
CHEM	2222	Organic Chemistry II	4
CHEM	3000	Environmental Chemistry	3
CHEM	3320	Analytical Chemistry	4
ELEC	2120	Industrial Safety	2
MATH	1500	Precalculus	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

Prescribed Distributive Requirements – 6 credits

Select six (6) credits from following courses:

EVTH	397_	Special Topics	3
BIOL	3504	Environmental Health	3
BIOL	3904	Toxicology	3
BIOL	4433	Industrial Microbiology	3
BIOL	4503	Conservation and Management of Natural Resources	3
BIOL	4953	Research Methods	3
CHEM	3015	Environmental Analytical Chemistry	4
CHEM	3350	Pharmaceutical Chemistry	3
CHEM	4003	Industrial Chemistry	3
CHEM	4160	Industrial Chemical Analysis	5
CHEM	4220	Biochemistry	4
MATH	2250	Calculus for Biology and Environmental Sciences	3

Finance (B.B.A.)

The major in finance is designed to prepare the student to understand, analyze and apply the principles that govern financial activities. The Program trains the student to use instruments of analysis in solving problems and in formulating decisions in the areas of corporate finances, public finances, insurance, real estate, banking and investment. Students must pass the required core and major courses with a minimum grade of C.

The Bayamón, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN FINANCE

General Education Requirements		48 credits
Core Course Requirements		41 credits
Major Requirements		24 credits
Prescribed Distributive Requirements		6 credits
Elective Courses		3 credits
	Total	122

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements - 41 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Communication Workshop in Spanish	
		or	
OMSY	3040	Communication Workshop in English	3

Major Requirements - 24 credits

FINA	3120	Advanced Managerial Finance	3
FINA	3200	Principles of Investment	3
FINA	3300	The Stock Market	3
FINA	3400	Introduction to Risk and Insurance	3
FINA	4100	International Finance	3
FINA	4970	Seminar in Finance	3
MAEC	3235	Money and Banking	3
MAEC	3236	Public Finance and Fiscal Policy	3

Prescribed Distributive Requirements - 6 credits

Select two of the following courses:

ACCT	3095	Business Ethics	3
BADM	3313	Mercantile Law	3
FINA	3130	Credits and Collections	3
FINA	3150	Personal Finance	3
FINA	3500	Introduction to Real Estate	3
FINA	4910	Internship	3

Minor in Insurance

The Minor in Insurance aims to develop graduates with the capacity to distinguish between the alternatives to protect goods and the wealth of people and companies, in the public as well as in the private sectors, so will enable them to develop and offer risk administration mechanisms.

The Metropolitan Campus is authorized to offer this minor.

Requirements for the Minor in Insurance - 18 credits

INSR	1400	Introduction to Risk and Insurance	3
INSR	1500	Introduction to Disability Life Insurance	3
INSR	1600	Life Insurance	3
INSR	1700	Employee Benefits Planning	3
INSR	1800	Personal Uses for Multilinear Insurance	3
INSR	1900	Commercial Uses and Functional and Operational Aspects of Multilinear Insurance	3

Food Technology (B.S.)

The Food Technology Program is interdisciplinary and is designed to prepare students in processing, preservation, handling, evaluation packaging, storage security, and the design and development of foods in different types of industries. The Program also has the purpose of preparing students to continue graduate studies.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN FOOD TECHNOLOGY

General Education Requirements		45 credits
Major Requirements		76 credits
Elective Courses		6 credits
	Total	127

General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students who have obtained a score equal to or greater than 550 in the area of mathematical achievement in the "College Entrance Examination Board" test are exempt from taking GEMA 1200.

Major Requirements - 76 credits

FTEC	2000	Introduction to Food Science and Technology	3
FTEC	3100	Food Technology and Processing	3

FTEC	3200	Fresh Meat Technology	3
FTEC	3300	Milk Products Technology	3
FTEC	4010	Nutritional Aspects and their Application	3
FTEC	4020	Quality Assurance in the Food Industry	3
FTEC	4030	Research and Products Development	3
FTEC	4910	Internship	3
BIOL	1101, 1102	Modern Biology I, II	6
BIOL	1103, 2013	Skills Laboratory I, II	2
BIOL	2153	Biostatistics	3
BIOL	3105	General Microbiology	4
BIOL	3309	Food Microbiology	3
BMSC	4015	Biochemistry of Human Physiology	3
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221, 2222	Organic Chemistry I, II	8
CHEM	3360	Food Chemistry	3
MATH	1500	Precalculus	5
MATH	2250	Calculus for Biology and Environmental Sciences	3
PHYS	1013	General Physics and its Applications	4

Forensic Science (B.S.)

The Forensic Science Program presents an interdisciplinary program of studies designed to develop in students the knowledge and fundamental skills necessary for the application of scientific methods used to discover the causes, method and circumstances of violent deaths and other crimes. The Program emphasizes the treatment of evidence and is characterized by its combination of knowledge in science and in forensic and criminal justice.

The Aguadilla, Bayamón and Ponce campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN FORENSIC SCIENCE

General Education Requirements		48 credits
Major Requirements		68 credits
Elective Courses		6 credits
	Total	122

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students who have obtained a score equal to or greater than 550 in the area of mathematical achievement in the "College Entrance Examination Board" test are exempt from taking GEMA 1200.

Major Requirements - 68 credits

FORS	2000	Introduction to Forensic Science	3
FORS	3400	Forensic Toxicology	3
FORS	3970	Special Topics	3
FORS	4421	Forensic Investigation I	3
FORS	4422	Forensic Investigation I, II	4
FORS	4910	Forensic Practice	3
FORS	4960	Integrating Seminar	1
BIOL	1116	Fundamentals of Human Anatomy and Physiology	5
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4

CHEM	2221, 2222	Organic Chemistry I, II	8
CHEM	3320	Analytical Chemistry	4
CHEM	4220	Biochemistry	4
CJUS	1000	Introduction to Criminology	3
CJUS	3025	Criminal Law	3
MATH	1500	Precalculus	5
PHYS	3001, 3002	General Physics I, II	8

Graphic Design (A.A.)

The Program of the Associate of Arts degree in Graphic Design aims to prepare the students to work in the communication of ideas and information industry, by means of the use of visual strategies, such as: the printed medium, images for commercial communication and digital presentations. It aspires to prepare graduates to work in the area of the graphic design, either in printing or electronically, advertising design, digital art and design for electronic distribution or Internet.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN GRAPHIC DESIGN

General Education Requirements		24 credits
Specialization Requirements		32 credits
Prescribed Distributive Requirements		6 credits
	Total	62

General Education Requirements - 24 credits

GESP	Spanish		6
GEEN	English		6
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 32 credits

ARTS	1103	Technical Foundations and Drawing Practice	3
ARTS	1200	Introduction to Graphical Design	3
ARTS	1220	Electronic Image	3
ARTS	1420	Typography Design	3
ARTS	1430	Printed Publication Design	3
ARTS	1440	Photo Mechanics	2
ARTS	1540	Digital Photography	2
ARTS	1600	Evolution of Graphic Design	3
ARTS	2110	Graphic Design Applied to Internet	2
ARTS	2200	Digital Graphic Design	3
ARTS	2400	Reproduction and Printing	2
ARTS	2910	Supervised Practice	2
ARTS	2970	Integration Seminar on Graphic Design	1

Prescribed Distributive Requirements- 6 credits

Students will select six credits from the following courses:

ARTS	2320	Animation for Internet	2
ARTS	2330	Design of Interactive Projects and Multimedia	2
ARTS	2520	Three-dimensional Design	2
ARTS	2530	Video and Digital Sound	2
ARTS	2531	Special Effects for Digital Video	2

Health, Physical Education and Recreation (B.A.)

The Health, Physical Education and Recreation curriculum offers a varied but solid course of instruction directed toward the physical, mental, emotional, intellectual and social development of its students.

Courses of study are offered for the Bachelor of Arts Degree in the Teaching of Physical Education at the Elementary Level, at the Secondary Level and Adapted Physical Education. The Program also offers the Bachelor of Arts Degree in Sports Technology.

The Sports Technology program is designed to prepare students to recognize the congenital or acquired problems of athletes related to the practice of sports. Prevention and rehabilitation of injuries, the use of safety equipment and the mental, physiological and social factors of persons participating in competitive or recreational sports are studied Attention is given to the creation and development of scientific training programs.

The Bachelor of Arts Degree in Education in School Health is designed to offer students knowledge in the teaching of health, by providing them a background in theories and educational methods at this level. It also provides concepts and principles of natural and social sciences and of the humanities. It directs future teachers toward the development of a better quality of life, making them aware of the importance of health and the physical, mental and social balance of human beings in their constant interaction with their surroundings. It provides early immersion in the classroom.

The campuses authorized to offer these programs are:

a. Bachelor of Arts in Education in Physical Education: Elementary Level - the Aguadilla, Arecibo, Guayama and San Germán campuses.
b. Bachelor of Arts in Education in Physical Education: Secondary Level - the Aguadilla and San Germán campuses.
c. Bachelor of Arts in Education in Adapted Physical - the San Germán Campus.
d. Bachelor of Arts in Sports Technology - The Metropolitan and San Germán campuses.
e. Bachelor of Arts in Education in School Health - The Metropolitan and San Germán campuses.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EDUCATION IN PHYSICAL EDUCATION

General Education Requirements		51 credits
Core Course Requirements in Education		32 credits
Core Course Requirements in the Major		36 credits
Major Requirements		12-15 credits
Elective Courses		3 credits
	Total	134-137

General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

Core Course Requirements in Education - 32 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4013	Clinical Experiences in the Educational Scenario II F (Elementary Level), K (Secondary Level), L (Adapted)	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Core Course Requirements in the Major - 36 credits

HPER	2140	Experiences in Movement I	2
HPER	2210	Fundamentals of the Discipline and the Profession of Physical Education, Function of the Teacher in the Discipline and in Society	3
HPER	2220	Experiences in Movement II	2
HPER	2320	First Aid and Personal safety for Children, Youth and Adults	2
HPER	3270	Anatomy and Kinesiology of Movement	3
HPER	3310	Experiences in Movement III	3
HPER	3330	Experiences in Movement IV	3
HPER	3350	Motor Learning and Movement Analysis	3
HPER	3360	Experiences in Movement V	3
HPER	3430	Personal and Collective Health and Safety	3
HPER	4020	Management of Physical Education Programs, Wellness, Health and Sports	3
HPER	4170	Physiology of Human Movement	3
HPER	4370	Teaching of Physical Education for Special Populations	3

Major Requirements - 12 or 15 credits

Students must choose one of the following majors

Adapted Physical Education

Adapted Physical Education Major Requirements 15 - credits

HPER	3470	Motor Therapy for Children with Disabilities	3
HPER	3475	Theory and Design of Programs for Special Populations	3
HPER	3495	Principles of Therapeutic Recreation	3
HPER	4130	Evaluation, Assessment and Research of Teaching and Learning in Adapted Physical Education	3
EDUC	3885	Educational Theory, Methodology and Technological Resources in the Teaching of Adapted Physical Education	3

Physical Education: Elementary Level

Elementary Level Specialization Requirements - 12 credits

HPER	3160	Educational and Recreational Games in the Curriculum for the Elementary Level	3
HPER	3220	Theory and Design of Physical Education Programs at the Elementary Level K-6	3

HPER	4110	Evaluation, Assessment and Research in Teaching and Learning of Physical Education K-6	3
EDUC	3878	Educational Theory, Methodology and Technological Resources in the Teaching of Physical Education at the Elementary Level	3

Physical Education: Secondary Level

Secondary Level Major Requirements - 12 credits

HPER	3230	Theory and Design of Physical Education Programs 7-12	3
HPER	4120	Evaluation, Assessment and Research in Teaching and Learning of Physical Education 7-12	3
HPER	4301	Sports Training Methodology I	3
EDUC	3875	Educational Theory, Methodology and Technological Resources in the Teaching of Physical Education at the Secondary Level 7-12	3

School Health (Physical Education)

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EDUCATION IN SCHOOL HEALTH

General Education Requirements		51 credits
Core Course Education Requirements		41 credits
Major Requirements		29 credits
Elective Courses		3 credits
	Total	124

General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

Core Course Education Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013M	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Major Requirements - 29 credits

HPER	1870	Themes in Health, Physical Education and Recreation	2
HPER	2030	Philosophy and Basic Principles of Health	3
HPER	2320	First Aid and Personal Safety for Children, Youth and Adults	2

HPER	3430	Personal and Community Health and Safety	3
HPER	3900	Human Sexuality	3
HPER	4140	Assessment, Evaluation and Research of Teaching and Learning in School Health Education	3
BIOL	1006	Fundamentals of Biology	4
EDUC	3886	Educational Theory, Methodology and Technological Resources in Teaching School Health	3
EDUC	4030	Environmental Health and Ecology	3
EDUC	4040	Counseling in Health Aspects	3

Sports Technology (Physical Education)

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SPORTS TECHNOLOGY

General Education Requirements		48 credits
Major Requirements		56 credits
Elective Courses		9 credits
	Total	113

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees."

Major Requirements - 56 credits

HPER	2210	Fundamentals of the Discipline and the Profession of Physical Education, Function of the Teacher in the Discipline and in Society	3
HPER	2320	First Aid and Personal safety for Children, Youth and Adults	2
HPER	3010	Sports Psychology	3
HPER	3050	Introduction to the Prevention and Management of Injuries	3
HPER	3051	Therapeutic Massages	3
HPER	3270	Anatomy and Kinesiology of Movement	3
HPER	3330	Experiences in Movement IV	3
HPER	3360	Experiences in Movement V	3
HPER	3380	Diagnosis and Prescription of Individual and Team Sports	3
HPER	3430	Personal and Community Health and Safety	3
HPER	3480	Nutrition for Sports Training	3
HPER	3495	Principles of Therapeutic Recreation	3
HPER	3800	Trends and Issues in Athletic Training	3
HPER	4020	Management of Physical Education Programs, Wellness, Health and Sports	3
HPER	4120	Evaluation, Assessment and Research in Teaching and Learning of Physical Education	3
HPER	4170	Physiology of Human Movement	3
HPER	4301	Sports Training Methodology I	3
HPER	4441	Practicum in Athletic Training I	3
HPER	4442	Practicum in Athletic Training II	3

Health Sciences (B.S.)

The program of the Bachelor of Science Degree in Health Sciences is interdisciplinary and flexible. It offers the opportunity to complete a Bachelor's Degree to those students that have an associate degree in health areas. The Program is designed to promote the development of sensitive health professionals that possess the knowledge and skills to offer quality health services. This knowledge is based on concepts and principles of natural, social and health sciences.

Students may choose a specialization in administration or education, which will allow them to occupy positions of a higher hierarchy and of leadership in their work. Graduates from this program will work within their

professional field, in areas such as: government agencies, insurance companies, pharmaceuticals, medical and diagnosis equipment companies, managerial positions such as department managers in hospitals or offices.

Admission Requirements

Candidates desiring to enter this Program must comply with the following requirements:

1. Have completed in a university institution an associate degree in a health area.
2. Have a minimum grade point average of 2.50.
3. Comply with all the admission requirements at the undergraduate level established in this Catalog and by the Campus.
4. Comply with the requirements established by the Department of Health Sciences:
    - Health Certificate
    - Hepatitis B Vaccination Certificate
    - No Criminal Record Certificate

5. Pass an interview with the Admissions Committee.

The Ponce Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN HEALTH SCIENCES

An Associate Degree in a health related area (Includes 24 credits in the General Education Program for Associate Degrees) 66 to 81 credits		
General Education Requirements at the Bachelor's Level		21 credits
Major Requirements		25 credits
Specialization Requirements		16 to 22 credits
	Total	130 to 149

General Education Requirements at the Bachelor's Level - 21 credits

The number of credits to be taken in the General Education Program will depend on the courses the student has passed at the associate degree level. Twenty-one (21) academic credits are required at the bachelor's level. Students of this Program are exempt from taking the course GEHP 3000 – Well-Being and Quality of Life.

Major Requirements - 25 credits

HESC	3005	Human Development	3
HESC	3010	Essential Concepts in Health Sciences	3
HESC	3020	Health and Illness throughout the Life Cycle	4
HESC	4010	Research Methods in Health Sciences	3
HESC	4015	Quality Guarantee and Improvement	3
HESC	4030	Collective Health Promotion	3
PSYC	1051	General Psychology I	3
PSYC	3001	Statistical Methods I	3

Specialization Requirements - 16 to 22 credits

Administration (Health Sciences)

Administration - 16 credits

HESC	4050	Planning and Marketing of Health Services	3
HESC	4065	Auditing Principles Applied to Health Services	3

HESC	4915	Internship	4
BADM	1900	Fundamentals of Management	3
BADM	3490	Supervision	3

Education (Health Sciences)

Education - 22 credits

HESC	4055	Methods and Techniques in Teaching Health Sciences	3
HESC	4060	Design and Development of an Educational Health Plan	3
HESC	4913	Internship	4
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3

History (B.A.)

The major in history offers a program of study leading to the Bachelor of Arts Degree in History. The Program provides students with an appreciation of the development of mankind in addition to providing essential training for careers in education, law, literature, communication, journalism, art, library science, curatorship, religion, private enterprise and public service.

The Metropolitan Campuses is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN HISTORY

General Education Requirements		45 credits
Major Requirements		33 credits
Prescribed Distributive Requirements		12 credits
Elective Courses		21 credits
	Total	111

General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students of this Program are exempt from taking the course GEHS 2010 – Historical Process of Puerto Rico.

Major Requirements - 33 credits

HIST	1020	The Ancient World	3
HIST	1030	The Medieval World	3
HIST	1040	The Modern World	3
HIST	1050	The Contemporary World	3
HIST	2030	Colonial Latin America	3
HIST	2050	Puerto Rico I	3
HIST	2055	Puerto Rico II	3
HIST	3050	United States I	3
HIST	3055	United States II	3
HIST	4020	Historiography	3
HIST	4210	Historical Research	3

Prescribed Distributive Requirements - 12 credits

Twelve (12) credits from the following courses:

HIST	2010	Latin American Indigenous Cultures	3
HIST	2035	Latin America since its Independence	3
HIST	2040	The Caribbean since the 17th Century	3
HIST	2045	The Hispanic Caribbean from the 15th to the 18th Centuries	3
HIST	2060	Introduction to Oral History	3
HIST	2210	Computer Use in Historical Research	3
HIST	3040	Africa	3
HIST	3060	Asia	3
HIST	3075	Russia during the 19th and 20th Centuries	3
HIST	3225	The Viceroyalty of the New Spain	3
HIST	3230	The Era of Revolutions 1774-1824	3
HIST		Special Topics	3
HIST	4110	Historical Problems	3
HIST	4220	Brazil	3
HIST	4240	Countries of the Southern Cone	3
HIST	4250	Canada	3
HIST	4260	Relations of the Church and State in Colonial America	3
HIST	4299	Study-Travel Seminar	3
HIST	4300	Study-Travel	3

Minor in History

The Metropolitan Campus is authorized to offer this minor.

Minor In History - 18 credits

Universal Historical Heritage - 6 credits

Two (2) courses from the following:

HIST	1020	The Ancient World	3
HIST	1030	The Medieval World	3
HIST	1040	The Modern World	3
HIST	1050	The Contemporary World	3

Regional Historical Heritage - 9 credits

Select three (3) courses from the following groups:

- **Puerto Rico**

HIST	2050	Puerto Rico I	3
HIST	2055	Puerto Rico II	3

- **Latin America**

HIST	2010	Latin American Indigenous Cultures	3
HIST	2030	Colonial Latin America	3
HIST	2035	Latin America Since its Independence	3
HIST	2040	The Caribbean Since the Seventeenth Century	3

• United States

HIST	3050	United States I	3
HIST	3055	United States II	3

• Spain and Portugal

HIST	2020	Spain and Portugal I	3
HIST	2025	Spain and Portugal II	3

Elective Course in History - 3 credits

Select another history course.

Hotel Management (B.B.A.)

The fundamental purpose of the Bachelor's Degree in Business Administration in Hotel Management is to prepare students in disciplines that will allow them to perform as managers at different levels in hotels.

Due to the nature of the hotel industry, graduates need to communicate effectively in English as well as Spanish. In order to develop communication skills in English, students are required to reach linguistic proficiency of at least the intermediate level (GEEN 1201, 1202 and 1203) and to pass a course of oral communication skills related to the hotel industry in English (HMGT 2100). Some of the courses of the major (HMGT), including the Internship course (HMGT 4915), are offered in English.

The Program aims to develop in the student the competencies in hotel management that promote an efficient and productive operation in the following areas: standards for human resources management, customer services, rates, publicity, food services: manage dining rooms services, bars and banquets, budget management and maintenance of physical facilities.

Students must pass the required core and major courses with a minimum grade of C.

Retention Requirements

The Bachelor's Program in Business Administration in Hotel Management requires that all students show satisfactory academic progress upon completing each academic year, as established in the institutional regulations found in the General Catalog. Furthermore, the student must maintain a minimum grade point average of 2.5 in the major.

In addition to the normal requirements established in the General Catalog, to receive the Bachelor's Degree in Business Administration in Hotel Management, the student must:

1. Obtain a minimum grade point average of 2.50 in the major at the university level.
2. Have passed the following courses with a minimum grade of C: GEEN 1201, 1202, 1203 or 2311, 2312, 2313.
3. Have passed with a minimum grade of B the major courses: TURI 1020, HMGT 1200 and HMGT 2100.
4. Have passed with a minimum grade of C the other courses of the major and their respective prerequisites (core and major courses).

The Aguadilla and Ponce campuses are authorized to offer this Program.

REQUIREMENTS FOR A BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN HOTEL MANAGEMENT

General Education Requirements		48 credits
Core Course Requirements		35 credits
Major Requirements		45 credits
Elective Courses		3 credits
	Total	131

General Education Program Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements - 35 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
OMSY	3030	Communication Workshop in Spanish	
		or	
OMSY	3040	Communication Workshop in English	3

Major Requirements - 45 credits

HMGT	1060	Introduction to Marketing in the Hotel Industry	3
HMGT	1200	Introduction to the Hospitality Industry	3
HMGT	2100	Oral Communication Skills in English for Hospitality and Tourism	3
HMGT	2400	Physical Facilities Management	3
HMGT	3010	Reception Department	3
HMGT	3200	Human Resources Management in the Hotel Industry	3
HMGT	3301	Food and Beverage Management I	3
HMGT	3302	Food and Beverage Management II	3
HMGT	3330	Hotel Management	3
HMGT	3500	Information Systems in the Hotel Industry	3
HMGT	4303	Food and Beverage Management III	3
HMGT	4400	Meetings and Conventions Management	3
HMGT	4915	Internship in Hotel Management	3
TURI	1020	Fundamentals of Tourism	3
TURI	2000	Laws and Tourism	3

Credit may be granted for the internship (TURI 4915) to students who have had a satisfactory work experience and who apply for it in writing to the director of the academic department. This credit will be subject to the following:

1. Students have been working full-time in a company for a minimum of two consecutive years within the three-year period immediately prior to the date of their request.
2. Students submit a certification and letter from their employer or the Human Resources Office of their place of employment which specifies:
   a. Years of experience
   b. Period of the time employed
   c. Position or positions held
   d. Job description
   e. Copies of evaluations received
   f. Any other evidence of their professional performance during their employment.
3. Students pay 50% of the tuition costs of the internship course for which they are requesting credit.
4. The experience recognized by the University corresponds to the requirement for the degree that the student hopes to obtain from the Institution.

Human Resources Management (B.B.A.)

Human Resources Management is a prominent functional area of business administration. The chief aim of this Program is to provide students with knowledge, skills and competence in the principles, functions and processes of human resources management. The Program emphasizes the importance of the integration of human resources management goals with those of the organization. Students must pass the required core and major courses with a minimum grade of C.

The Aguadilla, Arecibo, Bayamón, Fajardo, Guayama, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Ponce Campus is also authorized to offer this Program through distance learning.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN HUMAN RESOURCES MANAGEMENT

General Education Requirements		48 credits
Core Course Requirements		41 credits
Major Requirements		24 credits
Prescribed Distributive Requirements		3 credits
Elective Courses		3 credits
	Total	119

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements - 41 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Communication Workshop in Spanish	
		or	
OMSY	3040	Communication Workshop in English	3

Major Requirements - 24 credits

BADM	2650	Human Relations in the Organization	3
BADM	3020	Safety and Hygiene in the Work Environment	3
BADM	3330	Human Resources Management	3
BADM	3490	Supervision	3
BADM	3950	Human Resources Training and Development	3
BADM	4340	Protective Labor Legislation	3
BADM	4350	Syndication and Collective Bargaining	3
BADM	4430	Wages and Salary Management	3

Prescribed Distributive Requirements - 3 credits

Students will select thee (3) credits from the following courses:

BADM	3313	Mercantile Law I	3
BADM	3320	Public Policies toward Business	3
BADM	4800	Operations Management	3
BADM	4915	Human Resources Practicum	3

Minor in Human Resources Management

The Aguadilla, Arecibo, Bayamón, Fajardo, Guayama, Ponce and San Germán campuses are authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN HUMAN RESOURCES MANAGEMENT - 24 credits

BADM	1900	Fundamentals of Management	3
BADM	3020	Safety and Hygiene in the Work Environment	3
BADM	3330	Human Resource Management	3
BADM	3490	Supervision	3
BADM	3950	Human Resources Training and Development	3
BADM	4340	Protective Labor Legislation	3
BADM	4350	Syndication and Collective Bargaining	3
BADM	4430	Wages and Salary Management	3

Industrial Chemistry (B.S.)

The Bachelor of Science Program in Industrial Chemistry presents a curriculum of an interdisciplinary nature that in general terms, trains the student with specific knowledge on industrial subjects such as chemical manufacture, pharmaceutical manufacture, validations, technical service aspects, laboratory and industrial chemical analysis, and environmental management. The Program is characterized by the combination of knowledge in chemistry, biology, mathematics and courses regarding the mentioned industrial subjects.

Students interested in being admitted to the professional examination for chemists must pass the courses of Physical Chemistry (CHEM 3610 and 3920).

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN INDUSTRIAL CHEMISTRY

General Education Requirements		48 credits
Major Requirements		80 credits
Elective Courses		6 credits
	Total	134

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students who have obtained a score equal to or greater than 550 in the area of mathematical achievement in the "College Entrance Examination Board" test are exempt from taking GEMA 1200.

Major Requirements - 80 credits

CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4

CHEM	2221, 2222	Organic Chemistry I, II	8
CHEM	3000	Environmental Chemistry	3
CHEM	3010	Environmental Chemical Analysis	3
CHEM	3350	Pharmaceutical Chemistry	3
CHEM	3320	Analytical Chemistry	4
CHEM	4003	Industrial Chemistry	3
CHEM	4160	Industrial Chemical Analysis	5
CHEM	4850	Process Validation	3
CHEM	4915	Practice in Industrial Chemistry	3
CHEM	4965	Senior Seminar	3
BIOL	1003	Basic Biological Concepts	3
BIOL	2154	Fundamentals of Microbiology	3
COMP	2110	Introduction to Computer Science	3
MATH	1500	Precalculus	5
MATH	2100	Introduction to Probability and Statistics	3
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
PHYS	3001, 3002	General Physics I, II	8

Information Technology (B.B.A.)

The Bachelor's Degree Program in Business Administration in Information Technology provides practical preparation for administrators in the areas of Information Technology.

The Program has been designed to facilitate a complete understanding of the goals, functions and operations of business organizations, their information needs and the role of information systems in such organizations. The Program also provides for the development of analytical and technical skills to identify study and resolve problems of information control as well as the communication skills that allow for effective interaction with other members of a business organization, especially the users and implementers of computerized systems of management information. The Program also facilitates the acquisition of knowledge and abilities to effectively administer projects related to management information systems.

Graduates will know and be able to apply technologies related to the Internet, design databases and computer network, analyze and recommend auditing policies and security systems, develop programs in programming languages and will be professionals with ethical principles in the performance of their functions. In addition, in this major, they will have experience in the development of electronic businesses, the planning of entrepreneurial resources and the required concepts of project management of information systems.

This major also provides the background for continuing graduate studies and for the professional development in this discipline. Students must pass the required core and major courses with a minimum grade of C.

The Program aims to prepare professionals with the following characteristics:

General competencies:

1. Capacity to understand the natural complexities of the profession and attend to these in a satisfactory manner.
2. Ability to understand the basic elements of an organization, as well as its interrelations in order to achieve the capacity to recommend solutions that fully meet the information needs and requirements of a business.
3. Capacity to understand and apply new technologies and trends in the computer area and in information tecnology to create effective solutions within the organization.
4. Capacity to make decisions based on the acquired knowledge and the available information in harmony with the highest moral and ethical standards related to computer technology and information in general.
5. Ability to analyze the conflictive situations to which the information specialist is often exposed.
6. Ability to communicate findings and recommendations both orally and in writing.
7. Ability to develop optimal interpersonal relations.
8. The desire to continue to improve themselves professionally and to always be on the alert for new changes, trends and technologies.

9. Ability to work with other professionals and to attain a high degree of productivity in work teams and/or in projects.
10. Aspiration to contribute in a positive way to the society in which they work.
11. Awareness of the importance of continuing education through training to acquire new knowledge and skills or to retrain for updating and redefining skills and knowledge.
12. Demonstration of the proper values, habits, attitudes and qualities for a person educated in an integrated manner.

The Aguadilla, Barranquitas, Bayamón, Fajardo, Metropolitan, and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN INFORMATION TECHNOLOGY

General Education Requirements		48 credits
Core Course Requirements		35 credits
Major Requirements		33 credits
Prescribed Distributive Requirements		6 credits
Elective Courses		3 credits
	Total	125

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements - 35 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Communication Workshop in Spanish	
		or	
OMSY	3040	Communication Workshop in English	3

Major Requirements - 33 credits

CMIS	1100	Introduction to Information Systems	3
CMIS	1200	Programming Algorithms	3
CMIS	2310	Visual Programming in Information Systems	3
CMIS	2450	Introduction to the Internet in the Enterprise	3
CMIS	3130	Database Design and Management	3
CMIS	3350	Telecommunications and Business Networks	3
CMIS	3400	Electronic Businesses	3
CMIS	3420	Information System Analysis and Design	3
CMIS	4500	Audit and Security of Information Systems	3
CMIS	4915	Practicum	3
CMIS	4970	Seminar in Information Systems	3

Prescribed Distributive Requirements - 6 credits

Students will select six (6) credits from the following courses:

CMIS	2301	COBOL I	3
CMIS	3330	C Language	3
CMIS	3570	Internet Programming	3
CMIS	4610	Information Systems for Planning Entrepreneurial Resources	3
CMIS	4870	Management of Information Systems Projects	3

Credit may be granted for the practicum (CMIS 4915) to students who have had a satisfactory work experience and who apply for it in writing to the director of the academic department. This credit will be subject to the following:

1. Students have been working full-time in a company for a minimum of two consecutive years within the three-year period immediately prior to the date of their request.
2. Students submit a certification and letter from their employer or the Human Resources Office of their place of employment which specifies:
   a. Years of experience
   b. Period of the time employed
   c. Position or positions held
   d. Job description
   e. Copies of evaluations received
   f. Any other evidence of their professional performance during their employment.

3. Students pay 50% of the tuition costs of the practicum course for which they are requesting credit.

The experience recognized by the University corresponds to the requirement for the degree that the student hopes to obtain from the Institution.

Installation(s) and Repair of Computerized Systems and Networks (A.A.S. and B.S.)

Associate Program

The Associate of Applied Sciences Degree in Installation and Repair of Computerized Systems and Networks contains a curriculum that adapts the knowledge, theories, techniques and practices in the field of network administration to current and up-and-coming technologies. This Program allows students to acquire a technical competence according to their interests and aptitudes in a changing society.

Students must pass the required courses in the major with the minimum grade of C.

The Aguadilla, Bayamón, Fajardo and Guayama campuses are authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN INSTALLATION AND REPAIR OF COMPUTERIZED SYSTEMS AND NETWORKS

General Education Requirements		24 credits
Major Requirements		43 credits
	Total	67

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1200	Fundamentals of Algebra	3

GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 43 credits

CSIR	1120	Design of Computer Programs	3
CSIR	1131	Electronics I	3
CSIR	1210	Computer Mathematics	3
CSIR	1220	Data Communication	2
CSIR	1230	Microcomputer Operating Systems	3
CSIR	2121	Network Administration I	3
CSIR	2122	Network Administration II	3
CSIR	2132	Electronics II	3
CSIR	2140	Electronic Microprocessors	3
CSIR	2150	Installation and Configuration of Programs in Microcomputers and Networks	3
CSIR	2160	Network Installation	3
CSIR	2210	Assembly and Technical Maintenance of Personal Computers	3
CSIR	2230	Network Diagnosis, Maintenance and Service	3
CSIR	2910	Internship	2
BADM	1550	Administration and Business Organization	3

Bachelor's Program

The Bachelor of Science Degree in Installation and Repair of Computerized Systems and Networks contains a modern curriculum that adapts to the knowledge, theories, techniques and practices in the field of Networks Administration. This Program allows the student to acquire a detailed knowledge of the organization, architecture, operation and limitations of network systems. In addition, it develops in students a professional competence according to their interests and aptitudes in a changing society.

Students must pass the required courses in the major with a minimum grade of C.

The Aguadilla, Bayamón, Fajardo and Guayama campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN COMPUTER SCIENCE IN INSTALLATION AND REPAIR OF COMPUTERIZD SYSTEMS AND NETWORKS

General Education Requirements		48 credits
Major Requirements		64 credits
Elective Courses		9 credits
	Total	121

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Major Requirements - 64 credits

CSIR	1120	Computer Programs Design	3
CSIR	1131	Electronics I	3
CSIR	1210	Mathematics for Computers	3
CSIR	1220	Data Communication	2
CSIR	1230	Microcomputer Operating Systems	3
CSIR	2121	Network Administration I	3
CSIR	2122	Network Administration II	3

CSIR	2132	Electronics II	3
CSIR	2140	Electronic Microprocessors	3
CSIR	2150	Microcomputer and Network Program Installation and Configuration	3
CSIR	2160	Network Installation	3
CSIR	2210	Assembly and Technical Maintenance of Personal Computers	3
CSIR	2230	Network Design, Maintenance and Service	3
CSIR	3300	Architecture of Computerized Systems	3
CSIR	3310	Database Analysis and Design	3
CSIR	3315	Analysis and Design of Computerized Systems	3
CSIR	3510	Creation of Electronic Presentations and Publications	2
CSIR	4150	Network Security	3
CSIR	4500	Computer Assembly	3
CSIR	4910	Internship	3
CSIR	4950	Current Topics in Network Technology	3
BADM	1550	Business Management and Organization	3

Insurance (A.)

The Associate Degree in Insurance provides the option of a short-term career for a job market unknown by the majority of high school graduates. The specialized content of this program opens other training opportunity to university students who already possess a degree or are in the process of completing one; thus diversifying its job opportunities.

The structure of the specialization provides students formation in three identifiable categories: Life Insurance, Personal Insurance, and Personal and Commercial Insurance.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN INSURANCE

General Education Requirements		24 credits
Major Requirements		34 credits
	Total	61

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 34 credits

INSR	1400	Introduction to Risk and Insurance	3
INSR	1500	Introduction to Disability Life Insurance	3
INSR	1600	Life Insurance	3
INSR	1700	Employee Benefit Planning	3
INSR	1800	Personal Uses for Multilinear Insurance	3
INSR	1900	Commercial Uses and Functional and Operational Aspect of Multilinear Insurance	3
ACCT	1161	Introduction to Financial Accounting	4
BADM	2050	Business Finance	3
MAEC	2211	Principles of Economy (Micro)	3
MAEC	2212	Principles of Economy (Macro)	3
MAEC	2221	Basic Statistics	3

International Business (B.B.A.)

The International Business Program is designed to offer students the necessary knowledge to perform the basic managerial functions within a conceptual framework of international dimensions. The theoretical and practical academic activities aim to prepare students in the search of alternatives to promote international business within a global perspective. Students must pass the required core and major courses with a minimum grade of C.

The Ponce Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN INTERNATIONAL BUSINESS

General Education Requirements		48 credits
Core Course Requirements		38 credits
Major Requirements		39 credits
Elective Courses		3 credits
	Total	128

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements – 38 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Communication Workshop in Spanish	
		or	
OMSY	3040	Communication Workshop in English	3

Major Requirements – 39 credits

INTB	2100	Introduction to International Business	3
INTB	2200	Cultural Conscience in International Business	3
INTB	2301	Basic Concepts of Imports and Exports	3
INTB	2302	Licenses and Regulations for Imports and Exports	3
INTB	3330	Management of Human Resources at the International Level	3
INTB	3600	International Business Environment in the Americas, Europe and the Pacific	3
INTB	3710	International Sales Contracts and Terms of International Business	3
INTB	3750	Financial Institutions and International Investments	3
INTB	3800	Administration of International Transportation: Ocean, Air and Land	3
INTB	3900	Computerized Information Systems in International Business	3
INTB	4220	International Business Strategy	3
INTB	4911	Practice in International Business	3
MAEC	3243	International Economics	3

Managerial Economics (B.B.A.)

The major in managerial economics is designed to prepare students to analyze the principles of economics, finance, accounting, information systems and marketing and how to apply them to the situations and problems that arise in the administration of companies within the economic and social context of the country.

It is also designed to prepare professionals with managerial skills, enterprising capacity and to be highly competitive in order to function in the globalized world and to contribute to the development of Puerto Rico.

Students must pass the required core and major courses with a minimum grade of C.

The Bayamón and Metropolitan campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN MANAGERIAL ECONOMICS

General Education Requirements		48 credits
Core Course Requirements		41 credits
Major Requirements		21 credits
Prescribed Distributive Requirements		6 credits
Elective Courses		3 credits
	Total	119

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements - 41 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Communication Workshop in Spanish	
		or	
OMSY	3040	Communication Workshop in English	3

Major Requirements - 21 credits

MAEC	3234	Labor Economics	3
MAEC	3236	Public Finance and Fiscal Policy	3
MAEC	3243	International Economics	3
MAEC	4213	Macroeconomics Applied to Business	3
ENTR	2200	Fundamentals of Entrepreneurship	3
ENTR	3900	Entrepreneurial and Managerial Strategies	3
ENTR	4400	Design and Development of a Business Plan	3

Prescribed Distributive Requirements - 6 credits

Students will select six (6) credits from the following courses:

MAEC	1213	History of Economic Thought	3
MAEC	3235	Money and Banking	3
MAEC	3240	Mathematics for Decision-Making	3
MAEC	3330	Economic Development of Puerto Rico	3
MAEC	4220	Introduction to Econometry	3
FINA	3190	The Stock Market	3
FINA	3120	Advanced Managerial Finance	3
FINA	3200	Principles of Investment	3
MKTG	4243	Marketing Research	3
BADM	3340	Management Policies and Strategies	3

Marketing (B.B.A.)

Marketing is one of the most important functional areas of business administration. It consists of a variety of activities designed to serve not only large or small enterprises but the individual consumer as well. It is also considered the linking factor between production and consumerism, therefore affecting the nature and level of employment, the means of communication, the distribution and the degree of social and personal satisfaction. Students must pass the required core and major courses with a minimum grade of C.

The purpose of the marketing program is to provide the student with the theoretical and practical knowledge of this discipline to insure the development of sensible marketing and wise consumerism.

The Aguadilla, Arecibo, Bayamón, Fajardo, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Ponce Campus is also authorized to offer this Program through distance learning.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN MARKETING

General Education Requirements		48 credits
Core Course Requirements		41 credits
Major Requirements		21 credits
Prescribed Distributive Requirements		9 credits
Elective Courses		3 credits
	Total	122

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements - 41 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3

OMSY	3030	Communication Workshop in Spanish	
		or	
OMSY	3040	Communication Workshop in English	3

Major Requirements - 21 credits

MKTG	2220	Marketing Management	3
MKTG	2223	Consumer Behavior	3
MKTG	3230	Itegrated Marketing Communication	3
MKTG	4240	Contemporary Strategic Marketing	3
MKTG	4243	Marketing Research	3
MKTG	4244	Global Marketing	3
MKTG	4245	Electronic Marketing	3

Prescribed Distributive Requirements - 9 credits

Nine (9) additional credits in Marketing from the 3000 or 4000 levels.

Minor in Communication and Public Relations

The Minor in Communication and Public Relations aspires to prepare students so they may be directors of communications in organizations and be able to produce effective messages through mass media.

The Metropolitan Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN COMMUNICATION AND PUBLIC RELATIONS - 24 credits

COMU	1000	Introduction to Communications	3
COMU	1020	Introduction to Communication Media	3
COMU	3013	Public Relations Plan	3
BADM	3300	Communication in Management	3
MAMS	2630	Public Relations	3
MKTG	1210	Introduction to Marketing	3
MKTG	3230	Itegrated Marketing Communication	3
MKTG	3233	Public Relations in Organizations	3

Minor in Insurance Sales

The Minor in Insurance Sales aims to develop the following competencies: to propose alternatives to protect the goods and wealth of people and companies, marketing methods applied to the insurance industry. It also introduces students to the basic concepts in the insurances industry and to the available products as alternatives to manage risk.

The Metropolitan Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN INSURANCE SALES - 18 credits

INSR	1400	Introduction to Risk and Insurance	3
INSR	1500	Introduction to Disability Life Insurance	3
INSR	1600	Life Insurance	3
INSR	1800	Personal Uses for Multilinear Insurance	3
MKTG	3234	Personal Sales	3
MKTG	3235	Sales Management	3

Minor in Sports Marketing

The minor in Sport Marketing prepares the future professional in the application of marketing principles and processes to sports related services.

The Metropolitan Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN SPORT MARKETING - 18 credits

BADM	1900	Foundations of Management	3
MKTG	1210	Introduction to Trade	3
MKTG	2223	Consuming Behavior	3
MKTG	3230	Itegrated Marketing Communication	3
SRIM	1020	Foundations of the Sport and Recreation	3
SRIM	2300	Introduction to Sport Market	3

Mathematics (B.A. and B.S.)

The Program in Mathematics aims to develop in students the methodology of rigorous abstract and deductive reasoning pertinent to this discipline. It also will familiarize students with the principal applications in science, engineering, economics and business. The goal of the Program is to prepare students who wish to pursue graduate studies or pursue a career that requires vast mathematical knowledge.

The mathematics curriculum offers programs of study for the Bachelor of Arts Degree in Mathematics and Bachelor of Science Degree in Mathematics. The latter has two majors: Pure Mathematics and Computer Science.

For admission to this Program, students must have passed MATH 1500, Precalculus, with a minimum grade of C.

Mathematics (B.A.)

The Metropolitan and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN MATHEMATICS

General Education Requirements		48 credits
Core Course Requirements		32 credits
Major Requirements		17 credits
Elective Courses		19 credits
	Total	116

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take GEMA 1200 in the Basic Skills in Mathematics category.

Core Course Requirements - 32 credits

MATH	1500	Precalculus	5
MATH	2000	Discrete Methods	3
MATH	2100	Introduction to Probability and Statistics	3
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3080	Topics in Geometry	3
MATH	3130	Theory of Numbers	3

MATH	3350	Linear Algebra	3
MATH	4100	Applied Algebra	
		or	
MATH	4391	Abstract Algebra I	3

Major Requirements - 17 credits

Nine (9) credits from courses at the 3000 and 4000 levels. MATH 4430 is recommended for students of this program interested in the teaching of mathematics at the high school level.

PHYS	3001, 3002	General Physics I, II	8

Mathematics (B.S.)

The Bayamón Campus is authorized to offer the majors in Pure Mathematics and in Computer Science.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MATHEMATICS

General Education Requirements		48 credits
Core Course Requirements		39 credits
Major Requirements		24 credits
Elective Courses		6 credits
	Total	117

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students who have obtained a score equal to or greater than 550 in the area of mathematical achievement in the "College Entrance Examination Board" test are exempt from taking GEMA 1200.

Core Course Requirements - 39 credits

MATH	1500	Precalculus	5
MATH	2000	Discrete Methods	3
MATH	2100	Introduction to Probability and Statistics	3
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3091	Mathematical Statistics I	3
MATH	3250	Calculus III	3
MATH	3350	Linear Algebra	3
MATH	3400	Differential Equations	3
MATH	4970	Integration Seminar 1	1
COMP	2110	Introduction to Computer Science	3
COMP	2120	Logical Programming	3

Major Requirements - 24 credits

One of the following majors is required.

Computer Science (Mathematics)

Computer Science - 24 credits

MATH	3092	Mathematical Statistics II	3
MATH	4151	Numerical Analysis I	3

COMP	2300	Visual Programming	
		or	
COMP	3600	Computer Graphics	3
COMP	2315	Structured Programming	3
COMP	2900	Data Structures	3
COMP	3200	Computer Organization and Assembler Language	3
COMP	3500	Operating Systems	3
		An elective course in Mathematics at the 4000 level	3

Pure Mathematics

Pure Mathematics - 24credits

MATH	4391	Abstract Algebra I	3
MATH	4151	Numerical Analysis I	3
MATH	4550	Advanced Calculus	3
CHEM	1111	General Chemistry I	4
PHYS	3001, 3002	General Physics I, II	8
		An elective course in Mathematics at the 4000 level	3

Medical Emergencies (A.M.E.)

The course of studies for the Associate Degree in Medical Emergencies aims to prepare students to serve as paramedics and to offer emergency care to clients in pre-hospital scenarios.

The Program is geared to prepare students to use their knowledge and skills proficiently and to provide safe and effective care in emergency situations within the framework of ethical, moral, spiritual and legal values. The paramedic will be capable of controlling the emergency scene, coordinating services and collaborating with other health team members. The Program aims to develop paramedics who will assume responsibility for their professional growth and the advancement of the medical emergency practice.

Admission Requirements:

1. Comply with all admission norms established in the General Catalog and by the corresponding campus.
2. Provide a certificate of no criminal record issued by the Police of Puerto Rico.
3. Provide a health certificate issued by the Health Department.

Academic Progress Requirements:

1. Comply with the academic progress norms established in the General Catalog and by the corresponding campus.
2. Pass all major courses with a minimum grade of C.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN MEDICAL EMERGENCIES

General Education Requirements		24 credits
Major Requirements		42 credits
	Total	66

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3

GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 42 credits

EMMT	1161	Functions of the Paramedic	2
EMMT	1162	Practice in Functions of the Paramedic	1
EMMT	1171	Biomedics I	2
EMMT	1172	Practice in Biomedics I	1
EMMT	1260	Biomedics II	3
EMMT	1271	Medical Emergencies I	2
EMMT	1272	Practice in Medical Emergencies I	2
EMMT	1280	Communication and Dispatch Techniques	2
EMMT	1290	Handling of Patients with Emotional Problems	2
EMMT	2161	Pharmacology in Medical Emergencies	2
EMMT	2162	Practice in Pharmacology in Medical Emergencies	2
EMMT	2171	Gynecological-Obstetrical and Newborn Emergencies	2
EMMT	2172	Practice in Gynecological-Obstetrical and Newborn Emergencies	2
EMMT	2181	Medical Emergencies II	3
EMMT	2182	Practice in Medical Emergencies II	2
EMMT	2190	Extrication and Rescue	2
EMMT	2261	Medical Urgencies	3
EMMT	2262	Practice in Medical Urgencies	1
EMMT	2910	Field Internship	6

Medical Sonography in Cardiovascular Sonography (B.S.)

The Bachelor of Science Program in Medical Sonography with a major in Cardiovascular Sonography offers a flexible program for students who have an Associate Degree in Radiological Technology and for Certified Radiological Technologists. The main purpose of the Program is to develop clinical competences in medical sonography, as well as to promote the development of a judicious professional, with knowledge and skills to provide high quality services.

The Program offers students the opportunity to develop professionally through the acquisition of experiences in the instructive and clinical areas. The Program includes a base of scientific knowledge supported by concepts of the natural, social and human sciences.

Because sonography is a health allied science, it uses ultrasound to evaluate the well-being of the patient in the course of diagnosing diseases.

It is expected that graduates of this Program will be prepared to work in scenarios such as: public and private hospitals, specialized clinics, medical equipment companies and in industry.

Admission Requirements

Candidates seeking to enter the Bachelor of Science Program in Medical Sonography must meet the following requirements:

1. Have an Associate Degree in Radiological Technology from an accredited institution of post-secondary studies.
2. Have a minimum average of 2.50 in the degree.
3. Meet the admission norms established in the General Catalog of the University.
4. Be interviewed by the admissions committee and/or the Program coordinator.
5. Meet the admission requirements established by the Department of Health Sciences:
    - Health Certificate
    - Certificate of Immunization against Hepatitis B
    - Certificate of no Criminal Record

The Ponce Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MEDICAL SONOGRAPHY IN CARDIOVASCULAR SONOGRAPHY

Requirements of the Associate Degree in Radiological Technology		85 credits
General Education Requirements		18 credits
Major Requirements		28 credits
	Total	131

General Education Requirements - 18 credits

To receive the Bachelor of Science Degree in Medical Sonography, students must approve 18 credits in General Education in additional to the 24 credits approved for the Associate Degree. These 18 credits will be taken in the following manner:

- in the Philosophical and Esthetic Thought category, the course GEPE 4040 and either GEPE 2020, 3010 or 3020;
- in the Basic Skills in Spanish category, course GESP 2203;
- in the Basic Skills in English category, course GEEN 1103;
- in the Scientific and Technological Context category, either GEST 2020 or 3030;
- in the of Historical and Social Context category, either GEHS 3020, 3040 or 4030.

Major Requirements - 28 credits

SONO	3000	Basic Principles of Ultrasound	3
SONO	3010	Physics and Instrumentation of Ultrasound	3
SONO	3021	Images by Ultrasound I (Abdominal)	3
SONO	3022	Images by Ultrasound II (Pediatric and OB/GYN)	4
SONO	4000	High Resolution Sonographies	3
SONO	4010	Muscle/Skeletal Surface Structures Sonography:	3
SONO	4911	Internship in Ultrasound I	3
SONO	4912	Internship in Ultrasound II	3
SONO	4913	Internship in Ultrasound III	3

Medical Technology (B.S. and Certificate)

The Medical Technology Program responds to the mission of preparing professionals to fill the needs of present day Puerto Rico. It aspires to provide an excellenent academic education to prepare medical or scientific clinical laboratory technologists with the knowledge, skills, and attitudes necessary in a clinical laboratory science professional begining in the profession. It also attempts to develop individuals capable of communicating and interacting with patients, their teammates and other health professionals. The application of ethical and moral principles is fomented in the compliance of the laws that govern the laboratory and the Medical Technology profession. Students will become enabled to perform in different scenarios and to practice as enterprising professionals, clinical instructors, consultants, supervisors, administrators, educators, and researchers, among others by means of an innovating curriculum that promotes clinical research.

This Program is accredited by the National Accrediting Agency of Clinical Laboratory Sciences (NAACLS). Both programs have an intensive one year curriculum divided in two terms: academic or theoretical and practical. Two groups of students are admitted annually, one in August and the other in March. Upon completion of the Program, students are eligible to take the professional certification examination offered by the Puerto Rico Board of Examiners for Medical Technologists, the American Society for Clinical Pathologists (ASCP) and the National Certifying Agency for Laboratory Personnel (NCA), these last two have been recently united.

The Programs have affiliations established with different clinical laboratories where students may complete their clinical practice. These facilities are duly recognized by the Department of Health, are certified by CLIA as well as accredited by the Joint Commission of Hospital Accreditation (JCHA), and are certified by NACLS.

The Bachelor of Science degree in Medical Technology and the Professional Post Bachelor Certificate are offered.

Admission Requirements

1. Approval of the following courses* or their equivalent.

   General Biology I, II
   Microbiology
   Immunology
   Anatomy and Physiology
   General Physics I, II
   Precalculus
   General Chemistry I, II
   Analytical Chemistry
   Organic Chemistry I, II
   Biochemistry or Cellular and Molecular Biology

   *Some of the above courses have prerequisites.

   As part of the selection process of candidates, an interview to evaluate their knowledge and capability related to the academic requirements mentioned above will be required.

   In addition, students that opt for the bachelor's program in Medical Technology must have approved the general educaton requirements or their equivalent as established in the current catalog.

2. Completion of an application form and submission of an official academic transcript from all universities attended.
3. Submission of three (3) letters of recommendation, two of which should be from a faculty member.
4. A minimum general academic grade point index of 2.5 and in biology, chemistry, mathematics and physics courses.
5. An interview with a faculty member of the Program. The interview consists of questions on general knowledge, health and the medical technology profession. The obtained scores will be part of the accumulated score for admission
6. The ability to achieve essential non-academic requirements related to the demands of the profession as published in the information brochure of the Medical Technology Program. Students should have these requirements to be able to complete the Program satisfactorily and to work in the functions of the Medical Technology profession.
7. After admission to the Program, students must submit the following documents:
   a. Health certificate
   b. Evidence of Hepatitis B vaccination
   c. Evidence of a currnt medical plan
   d. A certificate of no criminal record
   e. It is possible that a doping test may be required in some practice centers.

   It is responsibility of the student to apply for admission to the School of Medical Technology. Once the application is completed and the admission requirements are met, students will be selected in a competitive manner according to available space in the Program. form, according to the capacity of the Program.

   To register in the courses, students must have been accepted in the Program.

Program Standards and Procedures

A. Academic Progress

Each course in both the theory and practice curricula should be completed with a minimum average of 75 percent. Students will be kept informed of their academic progress during the courses. If students do not obtain the minimum of 75% in a course, they may be placed on probation. Students that fail in a minimum of six credits will be dismissed from the Program for academic deficiency. Students dismissed for academic deficiency will not be readmitted to the Program.

B. Attendance

Attendance to the lectures and laboratories is compulsory. Unjustified absences, as established for each course, are sufficient reason for dismissal.

C. Conduct

Students must comply at all times with the established norms, policies and procedures of the Program, as established and available in the Student Handbook of the Medical Technology Program.

No student dismissed from the Program for violation of the Program norms may be readmitted to this Program.

External and and Internal Transfers

Transfers from other universities or from this University to MEDT courses are not allowed, these must be made by application for a space or admission through the School.

Transfers from Other Universities (External)

Students from other universities who plan to finiosh the Bachelor's degree in Medical Technology in this University and who have completed at least three years of university studies in an accredited institution, must have approved the following courses with a minimum grade of C and these will be equivalent to the General Education courses of this Institution:

	Credits
English	9
Spanish	9
Social sciences	6
Humanities	6
Religion	3
Mathematics	9
Total	42

Internal Transfers

Students of Inter American University of Puerto Rico can declare a major in the Bachelor od Science degree in Medical Technology (165) and transfer to the Metropolitan or San Germán campuses which are authorized to offer the major courses of the baccalaureate in Medical Technology. It is the responsibility of the students to request space in the Medical Technology program. They may take the courses of the MEDT major once they have completed all the General Education Requirements, the core course requirements, and have been admitted to the Program.

The process for internal transfer to the School will be realized only if the student is admitted to the Program in agreement with the admission requirements and the available space.

Medical Technology (Certificate)

The Metropolitan and San Germán campuses are authorized to offer the courses for the Professional Certificate in Medical Technology.

ACADEMIC REQUIREMENTS FOR THE PROFESSIONAL CERTIFICATE IN MEDICAL TECHNOLOGY

A Bachelor's Degree from an Accredited University		
Specific Requirements*		
Certificate Requirements		46 credits
	Total	46

Specific Requirements*

For the Professional Certificate in Medical Technology the following courses are required prior to the certificate course requirements.

General Biology I and II
Microbiology
Immunology
Anatomy and Physiology
General Physics I and II
Precálculus
General Chemistry I and II
Analytical Chemistry
Organic Chemistry I and II
Biochemistry or Cellular and Molecular Biology

Medical Technology (B.S.)

The Metropolitan and San Germán campuses are authorized to offer this Program.

ACADEMIC REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MEDICAL TECHNOLOGY

General Education Requirements or their Equivalent		42 credits
Core Course Requirements*		59 or 60 credits
Major Requirements		46 credits
	Total	147 or 148

* Some of the courses have additional prerequisites.

General Education Requirements - 42 credits

Forty-two (42) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students of this Program are exempt from taking the course GEST 2020 or 3030 of the Scientific and Technological Context category, and the course GEHP 3000 of the Health, Physical Education and Recreation category.

Core Course Requirements – 59 or 60 credits

BIOL	1101	Biology Modern I*	3
BIOL	1102	Biology Modern II*	3
BIOL	1103	Skills Laboratory I	1
BIOL	2103	Zoology	3
BIOL	2013	Skills Laboratory II	1

BIOL	2155	Genetics	3
BIOL	3105	General Microbiology*	3
BIOL	3106	Anatomy and Physiology*	3
BIOL	3405	Immunology*	3
CHEM	1111	General Chemistry I*	4
CHEM	2212	General Chemistry II*	4
CHEM	2221	Organic Chemistry I*	4
CHEM	2222	Organic Chemistry II*	4
CHEM	3320	Analytical Chemistry	4
CHEM	4220	Biochemistry	4
		or	
BIOL	4604	Cellular and Molecular Biology	3
		or	
BMSC	4015	Biochemistry of Human Physiology	3
MATH	1500	Precalculus	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

*Specific and indispensable prerequisites to take major courses. Without these specific prerequisite courses, major courses cannot be taken.

Major Requirements - 46 credits

MEDT	4501	Basic Principles, Statistics and Molecular Techniques in the Clinical Laboratory	3
MEDT	4510	Clinical Chemistry, Pathology and Molecular Diagnosis	4
MEDT	4520	Body Fluids	1
MEDT	4531	Clinical Immunology	2
MEDT	4532	Blood Banking	3
MEDT	4540	Hematology and Coagulation and Molecular Diagnosis in Hematopathology	4
MEDT	4560	Mycology and Virology	1
MEDT	4570	Clinical Bacteriology and Molecular Diagnosisin Infectious Diseases	4
MEDT	4585	Clinical Parasitology	2
MEDT	4593	Laboratory Administration, Ethics and Education	2
MEDT	4595	Advanced Seminar and Clinical Research	1
MEDT	4914	Clinical Practice in Urinalysis	1
MEDT	4915	Clinical Practice in Blood Banking	3
MEDT	4916	Clinical Practice in Serology, Immunology	2
MEDT	4919	Clinical Practice in Parasitology	1
MEDT	4921	Practice in Clinical Chemistry	4
MEDT	4922	Clinical Practice in Hematology	4
MEDT	4923	Clinical Practice in Microbiology	4

Microbiology (B.S.)

The Baccalaureate in Science in Microbiology is interdisciplinary. It integrates the areas of sciences and mathematics and applies them to the understanding of microorganisms and their diverse functions. Study of growth, environmental conditions, development and characteristics of the different groups of microorganisms. The Program aims to prepare graduates proficient in the use of isolation, identification, control, and chemical and microbiological analysis techniques. Skills are developed in handling basic and sophisticated equipment, research design and analysis of quantitative and qualitative data. Emphasis is given to the application of asepsis measures and security in a controlled environment.

The Aguadilla, Metropolitan, Ponce, and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MICROBIOLOGY

General Education Requirements		45 credits
Major Requirements		78 credits
Prescribed Distributive Requirements		3 credits
Elective Courses		3 credits
	Total	129

General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees). Students of this Program will take GEMA 1200 in the Basic Skills in Mathematics category. Students of this Program are exempt from the Scientific and Technological Context category.

Major Requirements - 78 credits

MICR	3211	Microbial Physiology	3
MICR	4010	Microbial Ecology	3
MICR	4505	Microbiological Application Techniques	2
MICR	4910	Internship	2
BIOL	1101	Modern Biology I	3
BIOL	1102	Modern Biology II	3
BIOL	1103	Skills Laboratory I	1
BIOL	2013	Skills Laboratory II	1
BIOL	2155	Genetics	3
BIOL	3105	General Microbiology	4
BIOL	3106	Anatomy and Human Physiology	4
BIOL	3405	Immunology	3
BIOL	4303	Mycology	3
BIOL	4305	Medical Microbiology	3
BIOL	4433	Industrial Microbiology	3
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221	Organic Chemistry I	4
CHEM	2222	Organic Chemistry II	4
CHEM	3320	Analytical Chemistry	4
CHEM	4220	Biochemistry	4
MATH	1500	Precalculus	5
PHYS	3001	Physics I	4
PHYS	3002	Physics II	4

Prescribed Distributive Requirements - 3 credits

Select one of the following courses:

BIOL	2153	Biostatistics	3
BIOL	3213	Parasitology	3
BIOL	3309	Food Microbiology	3
BIOL	4306	Virology	3

Minor in Microbiology

The Aguadilla, Metropolitan, Ponce and San Germán campuses are authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN MICROBIOLOGY - 19 credits

MICR	3211	Microbial Physiology	3
MICR	4010	Microbial Ecology	3
MICR	4505	Microbiological Application Techniques	2
MICR	4910	Internship	2
BIOL	4303	Mycology	3
BIOL	4305	Medical Microbiology	3
BIOL	4433	Industrial Microbiology	3

Music (B.A. and B.M.)

The Music Program offers four programs leading to a Bachelor's Degree in Music and also offers a minor in music. The Bachelor's Degrees in Music are Applied Music and Music Education: General Vocal and Instrumental. A Bachelor of Arts Degree in music is also offered.

The Degree of Bachelor of Applied Music prepares the students interested in a career as performers for graduate or professional studies abroad. The Bachelor of Music Degree in Music Education meets the curricular content requirements of the Department of Education of Puerto Rico for the certification of teachers of General Vocal and Instrumental Music.

As a means of broadening their employment opportunities in music-related occupations, the Bachelor of Arts Degree gives students the opportunity to receive a degree in music while they explore and study courses in other disciplines.

All students admitted to the Music Department at the San Germán Campus must take a placement test on the rudiments of music and on their instrument, since all students must have chosen an instrument or voice which they will pursue in order to meet the requirements of applied music. In the case of students with little knowledge of the fundamentals of music and/or the instruments of their choice, there are preparatory courses that will enable them to satisfy the demands of the required courses.

Requirements for Admission to Practice Teaching courses:

1. Be interviewed by the Teaching Internship Coordinator four weeks before the end of the regular semester prior to the semester in which students wish to do their practice teaching.
2. Submit an application for Admission to Teaching Internship accompanied by a transcript of credits or an evaluation for graduation.
3. Present an autobiography with a narrative of musical experience.
4. Have a minimum general grade point index of 2.50 as well as in major courses.
5. Have passed all courses required for the corresponding Teaching Internship, according to the General Catalog in effect.

The San Germán Campus is authorized to offer these programs.

Music (B.A.)

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN MUSIC

General Education Requirements		48 credits
Major Requirements		33 credits
Prescribed Distributive Requirements		10 credits
Elective Courses		22 credits
	Total	113

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees."

Major Requirements - 33 credits

MUSI	1231-3231	Concert Band I-V	
	or		
MUSI	1241-3241	University Choir I-V	5
MUSI	1 (70-89) 1-2	Instrument I, II	2
MUSI	2 (70-89) 1-2	Instrument III, IV	2
MUSI	1400	Theory and Sight-Reading*	3
MUSI	1461, 1462	Piano: Group Class I, II	2
MUSI	2411, 2412	Harmony and Counterpoint I, II	6
MUSI	2470	Keyboard Harmony	2
MUSI	3311, 3312	Western Music: History and Literature I, II	6
MUSI	3320	History of Puerto Rican and Latin American Music I, II	2
MUSI	4500	Conducting	3

*Requires MUSI 1110 or passing a placement test.

Prescribed Distributive Requirements - 10 credits

Ten (10) additional credits, which may be chosen from other music courses, except MUSI 101, 102 and 1110.

Music (B.M.)

Applied Music

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE IN APPLIED MUSIC

General Education Requirements		48 credits
Major Requirements		60 credits
Prescribed Distributive Requirements		6 credits
Elective Courses		9 credits
	Total	123

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees."

Major Requirements - 60 credits

MUSI	(1210-1280)	Chamber Group: Instrumental	
		or	
MUSI	1-4 (221-222)	Chamber Group: Vocal	4
MUSI	1231-4232	Concert Band I-VIII	
		or	
MUSI	1241-4242)	University Choir I-VIII	7
MUSI	1 (70-89) 1, 1 (70-89) 2	Instrument I, II4	
MUSI	2 (70-89) 1, 2 (70-89) 2	Instrument III, IV	4
MUSI	3 (70-89) 1, 3 (70-89) 2	Instrument V, VI	4
MUSI	4 (70-89) 1, 4 (70-89) 2	Instrument VII, VIII	4
MUSI	1400	Theory and Sight-Reading*	3
MUSI	1461-1462	Piano: Group Class I, II	2
MUSI	2411-2412	Harmony and Counterpoint I, II	6
MUSI	2470	Keyboard Harmony	2

MUSI	3311-3312	Western Music: History and Literature I and II	6
MUSI	3320	History of Puerto Rican and Latin American Music	2
MUSI	3440	Form and Analysis	3
MUSI	4431-4432	Orchestration and Arranging I, II	4
MUSI	4500	Conducting I	3
MUSI	4900	Recital	2

* Requires MUSI 1110 or the passing of a placement test.

Prescribed Distributive Requirements - 6 credits

(Chosen from the following courses)

MUSI	101-102	Applied Music: Fundamentals I, II**	2
MUSI	(70-89)	Instrument* - maximum	4
MUSI	3970	Special Topics – maximum	6
MUSI	4451-4452	Composition I, II	6
MUSI	4510-4520	Conducting II: Choral or Instrumental	4
MUSI	4970	Seminar - maximum	6
EDUC		Courses – maximum	6
Courses in French, Italian, German and Portuguese - minimum			6

** It must be an instrument other than that of the student's specialization.

Music Education: General Vocal

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE IN MUSIC EDUCATION: GENERAL VOCAL

General Education Requirements		48 credits
Major Requirements		90 credits
Elective Courses		3 credits
	Total	141

General Education Requirements - 48 credits

Forty-eight (48) credits of General Education are required for this Program. In addition to GEHS 2010, students will take GEHS 4020 and 4030 in the Historical and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

Major Requirements - 90 credits

MUSI	1 (70-89) 1-2	Instrument I, II	2
MUSI	2 (70-89) 1-2	Instrument III, IV	2
MUSI	3 (70-89) 1-2	Instrument V, VI	2
MUSI	1241-42	University Choir I, II	2
MUSI	2241-42	University Choir III, IV	2
MUSI	3241-42	University Choir V, VI	2
MUSI	4241-42	University Choir VII, VIII	2
MUSI	1400	Theory and Sight-Reading *	3
MUSI	1461-1462	Piano: Group Class I, II	2
MUSI	2411-2412	Harmony and Counterpoint I, II	6
MUSI	2470	Keyboard Harmony	2
MUSI	3301-3302	Vocal Techniques I, II	4
MUSI	3311-3312	Western Music: History and Literature I, II	6
MUSI	3320	History of Puerto Rican and Latin American Music I, II	2
MUSI	3440	Form and Analysis	3

MUSI	4431	Orchestration and Arranging I	2
MUSI	4436	Applied Technology in Music Education	3
MUSI	4500	Conducting I	3
MUSI	4510	Conducting II: Choral	2
MUED	4400	Elementary Methods: The Teaching of Music	2
MUED	4410	Secondary Methods: The Teaching of Music	2
MUED	4919	Student Teaching: General and Vocal Music	6
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2870	The Exceptional Student Population	4
EDUC	3013	Teaching Strategies	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of United States of America	3

* Requires MUSI 1110 or the passing of a placement test.

Music Education: Instrumental

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE IN MUSIC EDUCATION: INSTRUMENTAL

General Education Requirements		48 credits
Major Requirements		92 credits
Elective Courses		3 credits
	Total	143

General Education Requirements - 48 credits

Forty-eight (48) credits of General Education are required for this Program. In addition to GEHS 2010, students will take GEHS 4020 and 4030 in the Historical and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

Major Requirements - 92 credits

MUSI	1 (70-89) 1-2	Instrument I, II	2
MUSI	2 (70-89) 1-2	Instrument III, IV	2
MUSI	3 (70-89) 1-2	Instrument V, VI	2
MUSI	1231-32	Concert Band I, II	2
MUSI	2231-32	Concert Band III, IV	2
MUSI	3231-32	Concert Band V, VI	2
MUSI	4231-32	Concert Band VII, VIII	2
MUSI	1400	Theory and Sight-Reading *	3
MUSI	1461-1462	Piano: Group Class I, II	2
MUSI	2411-2412	Harmony and Counterpoint I, II	6
MUSI	2470	Keyboard Harmony	2
MUSI	3311-3312	Western Music: History and Literature I, II	6
MUSI	3320	History of Puerto Rican and Latin American Music	2
MUSI	3321-3322	Techniques of Musical Instruments I, II	6
MUSI	3440	Form and Analysis	3
MUSI	4431	Orchestration and Arranging I	2
MUSI	4436	Applied Technology in Music Education	3
MUSI	4500	Conducting I	3

MUSI	4520	Conducting II: Instrumental	2
MUED	4400	Elementary Methods: The Teaching of Music	2
MUED	4410	Secondary Methods: The Teaching of Music	2
MUED	4920	Student Teaching: Instrumental	6
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	4050	Curriculum Design	2
EDUC	2870	The Exceptional Student Population	4
EDUC	3013	Teaching Strategies	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of United States of America	3

* Requires MUSI 1110 or passing a placement test.

Minor in Music

The San Germán Campus is authorized to offer this minor.

REQUIREMENTS FOR A MINOR IN MUSIC - 18 credits

Specific Requirements - 12 credits

Applied Music for Students from other Concentrations	2
Concert Band or University Choir	2
Theory and Sight-Reading	3
Piano: Group Class I, II	2
Harmony and Counterpoint I	3

Six (6) additional credits chosen from music courses, except MUSI 1110.

Music Business Management (A.)

The Associate Degree in Management of Music Companies has the aim of providing students with the resources necessary to carry out successfully the management of any company related to the music business, such as their own or private disco graphic companies, music publishing companies and the management and promotion of concerts.

The Program aims to develop the following competencies: to know the different types of musical enterprise models, the legal principles and the different types of contracts related to this industry. In addition, it proposes to familiarize the student with the techniques available to finance musical works. Similarly, the program endeavors to make students aware of the possibilities of self-employment in a highly competitive world.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN MANAGEMENT OF MUSIC COMPANIES

General Education Requirements		24 credits
Major Requirements		39 credits
	Total	63

General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6

GEIC	1010	Information and Computer Literacy	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEMA	1200	Fundamentals of Algebra	3

Major Requirements - 39 credits

MUBA	1000	Introduction to Business in the Music Industry	3
MUBA	1100	Music Marketing	3
MUBA	1200	Principles of Treatment and Management of Artists	3
MUBA	1400	Legal Aspects in the Music Business	3
ACCT	1161	Introduction to Financial Accounting	4
BADM	2050	Business Finance	3
CMIS	2100	Introduction to Computerized Information Systems	3
ENTR	2200	Entrepreneurial Fundamentals	3
MAEC	2211	Principles of Economics (Micro)	3
MKTG	1210	Introduction to Marketing	3
MUSI	0531	Music Theory and Sight Singing	3
MUSI	1122	Comparative History of Music I	3
MUSI	3320	History of Puerto Rican and Latin American Music	2

Networks and Telecommunications (B.S.)

The Networks and Telecommunications Program offers the most advanced courses in the field of data networks, telecommunications, shared computerized resource environments through corporative networks and administration of these systems based on Windows, Netware, Linux, IBM iSeries and Cisco, among others. Emphasis is on the integration of basic managerial concepts to fortify managerial knowledge. The Program is designed to prepare graduates to plan, design, install and administer networks that will support the functions of the company. It is also expected that graduates will be able to install and configure data network access servers, Internet, Intranet and Extranet electronic mail servers, database servers, storage servers and will be able to develop programming necessary for applications in Internet as well as solutions for radio networks, security technologies, management of voice and video networks, and design the distribution of wiring and optical fiber. Several of the courses offered provide the foundation that will permit graduates to continue their professional improvement and be certified in various professional certification programs. Major courses with the code NTEL must be passed with a minimum grade of C.

Admission Requirements

Admission requirements to the Bachelor of Science Program with concentration in Networks and Telecommunications are those that apply generally to the University's Undergraduate Programs.

1. A high school general grade point index of 2.00 or more.
2. Students whose academic indices are from 2.00 to 2.99 will be required to have an interview for the admission to the Program.

The Ponce Campus is authorized to offer this Program.

REQUIREMENTS FOR THE OF BACHELOR OF SCIENCE DEGREE IN NETWORKS AND TELECOMMUNICATIONS

General Education Requirements		48 credits
Major Requirements		73 credits
Elective courses		3 credits
	Total	124

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees. Students of this Program will take GEMA 1200 in the Basic Skills in Mathematics category.

Major Requirements - 73 credits

NTEL	1200	Introduction to Networks and Telecommunications	3
NTEL	2101	Network Protocols	3
NTEL	2150	Design of Telecommunications Distribution	3
NTEL	2300	Linux Networks	3
NTEL	3110	Installation and Administration of Networks Systems	3
NTEL	3230	Introduction to JAVA Programming	3
NTEL	3310	E-mail Server	3
NTEL	3401	Minicomputer Operations	3
NTEL	3520	Internet Programming and Administration	3
NTEL	3600	SQL Database Server	3
NTEL	3770	Wireless Networks	3
NTEL	3971	Special Topics in Telecommunications	3
NTEL	4150	Security in Networks	3
NTEL	4500	Audit and Controls in Network Systems	3
NTEL	4520	Voice and Video Networks	3
NTEL	4610	Storage Networks	3
NTEL	4750	Networks Management	3
NTEL	4910	Practicum in Telecommunications	3
ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3
CMIS	2100	Introduction to Computerized Information Systems	3
CMIS	2200	Programming Algorithms	3
MATH	1070	Fundamentals of Applied Mathematics	3
MKTG	1210	Introduction to Marketing	3

Nursing (A.A.S. and B.S.N.)

The Nursing Program has as its mission the formation of nurses able to offer competent, sensible, effective, safe, and quality nursing care to the client person, family and community. The Program aims to produce graduates prepared to:

1. Provide care with autonomy and with interdisciplinary collaboration and sensitivity to ethical-legal and cultural values and directed to the achievement of the best results for the client.
2. Coordinate care by applying leadership and management skills that lead to the highest quality care with the minimum of cost.
3. Assume a commitment as a member of the discipline in harmony with the standards of the practice.

For the development of this professional diverse and flexible modalities of study are offered. This facilitates mobility from the level of the associate degree to the baccalaureate.

It is expected that students who decide to leave the Program to work as Associate Nurses be able to:

1. Apply theoretical and practical knowledge of the nursing, science and humanistic, disciplines when they analyze the biological, psychological, social and spiritual determinants of health in the different growth and development stages.
2. Demonstrate updated clinical skills in therapeutic interventions when offering care to the client throughout the continuum of health and disease in structured scenarios

3. Use the Nursing Process as an instrument in making clinical decisions and, simultaneously demonstrate critical thinking and skills in problem solving when offering safe, quality and cost-effective care.
4. Demonstrate responsibility and ethical-legal commitment with humanistic care in response to the changing needs of society.
5. Demonstrate effective management, coordination and collaboration skills in care as a member of the interdisciplinary team in such a way that care can improve continuously.
6. Demonstrate responsibility and commitment for self development and that of the nursing profession.
7. Use communication skills and technology to maintain the quality of care offered to the client and to improve their own knowledge.

It is expected that students who decide to finish the Bachelor of Science Degree in Nursing to work as generalist nurses be able to:

1. Integrate knowledge to provide safe and effective nursing care to individuals, families and communities and to contribute to society as citizens.
2. Use nursing interventions to prevent disease and promote, maintain and restore health.
3. Use assessment and intervention skills while offering nursing care in diverse scenarios so their expected results in health care can improve.
4. Apply humanistic care in nursing practice thereby obtaining the protection, optimization and preservation of human dignity.
5. Act as effective leaders and care managers seeking balance among the health care resources and contributing to the improvement of the profession.
6. Integrate critical thinking skills when making clinical judgments and using research findings for the continuous improvement of the nursing practice.
7. Communicate effectively to optimize their own performance as care providers and coordinators and as members of the profession.

Major requirements are offered in a four-year program with an option to leave the Program upon completing the requirements of the first two years. Each year is equivalent to a level in which courses have been organized and developed according to their level of complexity. In the first two years (levels I and II) technical (associate) knowledge and skills are presented; in the last two years (levels III and IV) those corresponding to the professional level (generalist) are presented. This scheme articulates both levels of preparation, (associate degree and Bachelor's Degree in nursing) by integrating knowledge and skills.

Students in the Nursing Program are exempt from taking GEHP 3000 – Well-being and Quality of Life.

Admission Requirements

1. Comply with the admissions requirements established in the General Catalog and by the corresponding campus.
2. To be admitted to the Program, candidates must:

    a. Have a minimum grade point index 2.50.
    b. Have an interview with the Program Director or the person delegated by the Director.
    c. Perform a self evaluation of the essential non academic abilities associated with the demands of the profession.

3. To be admitted to the third level (third year courses) of the Bachelor of Science Degree in Nursing, students must:
    a. Have satisfactorily completed the requirements of the first two years of the Degree in Nursing or,
    b. Present evidence of holding an Associate Degree in Nursing from an accredited and recognized institution of higher education. Candidates having an Associate Degree must complete any general education requirement established by the Institution and the corresponding campus for awarding the degree.

Note:
To be admitted to a clinical practice agency, the following is required:

1. A certificate of no criminal record issued recently by the Police of Puerto Rico.
2. A health certificate valid for one year issued by the Health Department.
3. Evidence of vaccination against Hepatitis B.

Some agencies and courses have additional requirements. Students are responsible for complying with any other requirement imposed by the agency or the practice. Among these are: An updated certificate of CPR, a negative dope test, a nose and throat culture.

Transfer Requirements:

1. Comply with the admissions requirements for transfer students established in the General Catalog and by the corresponding Campus.
2. Admission of transfer students to the Program or to take courses of the major with combined registration requires the previous authorization of both Program directors.

Academic Progress Requirements of the Nursing Program:

1. Comply with the admissions requirements for transfer students established in the General Catalog and by the appropriate Campus.
2. Pass all courses in Nursing and the course GEMA 1000 Quantitative Reasoning) with a minimum grade of C.
3. Students who do not pass the same major course three times with a minimum grade of C will be dropped from the Program.
4. Complete all requirements for the Degree with at least the minimum grade point index of the corresponding campus.

Graduation Requirements

1. For the Associate Degree in Nursing students are required to complete 50% of the major credits in the campus from which they expect to receive the degree. This also applies to the Bachelor's Degree
2. Students must take course NURS 4980 in the campus where they expect to graduate, except in special situations with the previous authorization of the Director of the Program.
3. Students, upon completing the requirements of the first two years of study, have the option to request certification of the Associate Degree in Nursing in order to apply for revalidation.

The Aguadilla, Arecibo, Barranquitas, Bayamón, Guayama, Metropolitan, Ponce and San Germán campuses are authorized to offer the Associate Degree in Nursing and the Bachelor of Science Degree in Nursing.

The Associate Program and the Bachelor's Program of the Metropolitan Campus are accredited by the National League for Nursing Accrediting Commission, (**http://www.nlnac.org.)**

The Bachelor's Programs of the Aguadilla and Arecibo campuses are accredited by the National League for Nursing Accrediting Commission, (**http://www.nlnac.org.)**

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN NURSING

General Education Requirements		24 credits
Major Requirements		41 credits
	Total	65

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 41 credits

NURS	1120	Basic Principles and Concepts of Nursing	2
NURS	1121	Fundamentals in Nursing	3
NURS	1122	Practice of Fundamentals of Nursing	2
NURS	1130	Pharmacology Aspects	3
NURS	1221	Fundamentals in Psychosocial Care	3
NURS	1222	Practice of Psychosocial Care	2
NURS	1231	Fundamentals of Adult Care I	6
NURS	1232	Practice of Adult Care I	2
NURS	2233	Fundamentals in Adult Care II	6
NURS	2234	Practice of Adult Care II	2
NURS	2141	Fundamentals of Maternal-Neonatal Care	3
NURS	2142	Practice of Maternal-Neonatal Care	2
NURS	2351	Fundamentals of Pediatric Care	3
NURS	2352	Practice of Pediatric Care	2

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN NURSING

General Education Requirements		45 credits
Major Requirements		72 credits
Elective Courses		3 credits
	Total	120

General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students of this Program are exempt from taking the course GEHP 3000 in the Health, Physical Education and Recreation category.

Major Requirements - 72 credits

NURS	1120	Basic Principles and Concepts of Nursing	2
NURS	1121	Fundamentals of Nursing	3
NURS	1122	Practice of Fundamentals of Nursing	2
NURS	1130	Pharmacological Aspects	3
NURS	1221	Fundamentals of Psychosocial Care	3
NURS	1222	Practice of Psychosocial Care	2
NURS	1231	Fundamentals of Adult Care I	6
NURS	1232	Practice of Adult Care I	2
NURS	2141	Fundamentals of Maternal-Neonatal Care	3
NURS	2142	Practice in Maternal-Neonatal Care	2
NURS	2233	Fundamentals of Adult Care II	6
NURS	2234	Practice of Adult Care II	2
NURS	2351	Fundamentals of Pediatric Care	3
NURS	2352	Practice of Pediatric Care	2
NURS	3110	Dimensions of Professional Practice	4

NURS	3120	Health Assessment	4
NURS	3130	Introduction to the Nursing Research Process	2
NURS	3140	Intervention in Psychosocial Transition	2
NURS	3190	Professional Intervention during the Life Cycle	4
NURS	4180	Nursing Care for the Family and Community	4
NURS	4911	Integrated Practice I	3
NURS	4914	Integrated Practice II	4
NURS	4980	Integration Workshop	4

Minor in Nursing Management

The Minor in Nursing Management is directed to strengthen, in the students, the knowledge and skills necessary to perform better their role as leaders and managers in health scenarios.

The Arecibo and San Germán campuses are authorized to offer this Minor.

REQUIREMENTS FOR THE MINOR IN NURSING MANAGEMENT - 24credits

BADM	1900	Fundamentals of Management	3
BADM	2650	Human Behavior in the Organization	3
BADM	3020	Security and Hygiene in the Work Environmen	3
BADM	3330	Human Resources Management	3
BADM	3490	Supervision	3
BADM	3950	Human Resources Training and Development	3
BADM	4340	Protective Legislation Legislation	3
BADM	4350	Syndication and Collective Bargaining	3

Minor in Gerontology for Nursing

The Arecibo Campus is authorized to offer this Minor.

REQUIREMENTS FOR THE MINOR IN GERONTOLOGY FOR NURSING - 18 credits

GERO	2000	Introduction to Gerontology	3
GERO	2010	Neuropsychology for the Elderly Adult	3
GERO	3310	Ethical and Legal Aspects in Gerontology	3
GERO	3311	Loss and Death	2
GERO	3312	Trends and Controversies in Elderly Adult Care	2
GERO	4313	Alterations of the Health Cycle -Disease in the Elderly Adult	3
GERO	4915	Clinical Practicum in Gerontology	2

Occupational Therapy (A.S.)

The Associate of Science Degree Program in Occupational Therapy has as its mission to offer students an educational program of the highest quality. It is designed to offer students scientific knowledge based on the concepts and principles of natural, social and humanistic sciences. In occupational therapy, the human being is seen as a holistic being: body, mind and spirit

The program aims to prepare a health paraprofessional to provide specialized treatment under the supervision of an Occupational Therapist properly qualified by the pertinent agencies. The Program aims to promote independence, productivity, quality of life and rehabilitation in the occupation areas to facilitate a state of health and general well-being in the clients.

It aims to prepare the student as an Occupational Therapy Assistant through development of skills that support and facilitate the adaptation process of clients with physical and emotional incapability. It incorporates the new trends and technology in the field.

Graduate of this program will be prepared to work in hospitals, schools, rehabilitation centers, health care programs in the home, hospices, psycho-social care centers, and special education centers.

Admission Requirements

1. Meet the Inter American University admission requirements.
2. Have minimum grade point index of 2.50.
3. Provide a health certificate issued by the Health Department or an authorized doctor.
4. Provide a certificate of no criminal record issued by the police of Puerto Rico.
5. Provide evidence of vaccination against Hepatitis B.

Retention Requirements

1. Meet all the academic progress norms established in the University's General Catalog.
2. Pass all major courses with a minimum grade of C.
3. Maintain a minimum grade point index of 2.00.
4. Students obtaining a grade less than C twice in the same course or in three courses of the major will be placed on probation for a period not greater than one academic year. Students, who, during the probationary period, do not reach the required minimum grade point index may not continue in the Program, but may choose to request admission to another study program.

Graduation Requirements

1. Students must pass all major courses with a minimum grade of C.

The Ponce Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF SCIENCE DEGREE IN OCCUPATIONAL THERAPY

General Education Requirements		24 credits
Major Requirements		64 credits
	Total	88

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3
GEHS	2010	Historical Process of Puerto Rico	3
GEMA	1000	Quantatative Reasoning	3

Major Requirements - 64 credits

OCTH	1000	Introduction to Occupational Therapy	3
OCTH	1031	Therapeutic Modalities I	3
OCTH	1040	Occupational Sociology	3
OCTH	1050	Occupation throughout the Life Cycle	3
OCTH	1060	Anatomy and Applied Physiology	4
OCTH	1120	Processes in Occupational Therapy	3
OCTH	1121	Occupational Therapy Applied to Pediatrics I	3
OCTH	1132	Therapeutic Modalities II	3
OCTH	1141	Occupational Therapy Applied to Psychosocial I	3
OCTH	1911	Instructional Practice	3
OCTH	2001	Physical Dysfunction I	3

OCTH	2013	Therapeutic Modalities III	3
OCTH	2022	Occupational Therapy Applied to Pediatrics II	3
OCTH	2042	Occupational Therapy Applied to Psychosocial II	3
OCTH	2102	Physical Dysfunction II	3
OCTH	2135	Occupational Therapy in Daily Activities	3
OCTH	2921	Clinical Practical I	4
OCTH	2922	Clinical Practical II	8
OCTH	2975	Integration Seminar	3

Office Systems Administration (A.A. and B.A.)

Associate Program

The Associate of Arts Degree in Office Systems Administration is designed to provide students the opportunity of developing the fundamental skills and fundamental knowledge of this level, that train them to work effectively as professional administrative support personnel in office systems administration.

The requirements for admission, academic progress, and graduation are those established by this Catalog.

The student must pass the required courses of the major with a minimum grade of C.

Courses with an asterisk require the use of technological equipment and have a special fee.

All campuses are authorized to offer this Program. In addition, the Barranquitas, Metropolitan and Ponce campuses are authorized to offer this Program through distance learning.

REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN OFFICE SYSTEMS ADMINISTRATION

General Education Requirements		24 credits
Major Requirements		37 credits
	Total	61

Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 37 credits

OMSY	1101	Information Processing Skills I*	4
OMSY	1102	Information Processing Skills II*	4
OMSY	2000	Production of Business Documents*	4
OMSY	2040	Spreadsheets in Office Applications*	3
OMSY	2060	Management of Documents and Databases*	4
OMSY	2230	Information Processing in Legal Affairs Offices*	3
OMSY	2240	Information Processing in Medical Service Offices*	3
OMSY	3020	Human Resources in the Organizational Environment	3
OMSY	3030	Business Communication Workshop in Spanish	3
OMSY	3040	Business Communication Workshop in English	3
OMSY	3080	Office Systems Administration	3

Bachelor's Program

The Bachelor of Arts in Office Systems Administration responds to the need of satisfying the demands of the market for professionals of administrative support with knowledge in the operation of electronic systems, with the knowledge, techniques, procedures, and skills required to perform successfully in the office. This Program offers the cultural background and the basic knowledge of office administration that allow the professional administrative support personnel to participate effectively in decision-making , analysis of data, managing and processing of information, oral and written communication and in establishing effective interpersonal relations.

This Program aims to prepare professional administrative support personnel with the skills and knowledge necessary to explore self-employment as a viable alternative in other professional careers. In addition, it aspires to prepare self-directed students that can work in their future job with a minimum of supervision and that have the ability to work in a team.

The Program articulates the levels of preparation of the associate and Bachelor's Degrees. During the first years of studies the student is offered the knowledge and skills of the associate degree, while during the last two years, there is emphasis on the knowledge and skills at the professional or bachelor degree levels. This way, it offers students the opportunity to obtain the Associate of Arts Degree in Office Systems Administration, once the student completes the 60 credits that are stipulated as requirements.

Students must pass all the required courses of the major with a minimum grade of C.

The Professional Practice course may be accepted for students who request it and show that they have satisfactorily met the established requirements. The University will only accept experiences that correspond to the degree that students hope to obtain from the Institution. This acceptance requires that students:

1. Make a formal request to the Director of the Department in which they show evidence of having worked without interruption for a minimum term of three years in a position similar or equivalent to an office administrator.
2. Present a Portfolio in which there is evidence of:

    a. years of experience
    b. period of time employed
    c. positions or positions occupied
    d. description of duties
    e. equipment used
    f. copy of evaluations received
    g. work that evidences skills developed in the position occupied
    h. any other evidence of the professional work during the time of employment

3. Pass an interview process, which will be coordinated by the Director of the Department along with faculty members.
4. Pay 50% of the tuition cost of the course OMSY 4910 – Professional Practicum.

The courses that require the use of technological equipment have a special fee. Such courses are identified by an asterisk.

All campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN OFFICE SYSTEMS ADMINISTRATION

General Education Requirements		48 credits
Major Requirements		61 credits
Related Requirements		7 credits
Elective Courses		3 credits
	Total	119

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." In addition to the course GEHS 2010--Historical Process of Puerto Rico, students of this Program will take course GEHS 2020 – Global Vision of Economy from the Historic and Social Context category. Students will select the other three (3) prescribed distributive credits from those available in this category.

Major Requirements - 61 credits

OMSY	1010	Speed Writing in Spanish	3
OMSY	1101	Information Processing Skills I*	4
OMSY	1102	Information Processing Skills II*	4
OMSY	2000	Production of Business Documents*	4
OMSY	2040	Spreadsheets in Office Applications*	3
OMSY	2060	Management of Documents and Databases*	4
OMSY	2230	Information Processing in Offices of Legal Affairs*	3
OMSY	2240	Information Processing in Offices of Medical Services*	3
OMSY	3000	Medical Services Billing*	3
OMSY	3020	Human Resources in the Organizational Environment	3
OMSY	3030	Business Communication Workshop in Spanish	3
OMSY	3040	Business Communication Workshop in English	3
OMSY	3050	Graphic Art Design for Offices*	3
OMSY	3080	Office Systems Administration	3
OMSY	3500	Interactive Business Communication in English	3
OMSY	4010	Integrated Application Programs in Office Administration*	3
OMSY	4500	Telecommunications in the Office*	3
OMSY	4910	Professional Practicum	3
OMSY	4970	Integrating Seminar	3

Related Requirements - 7 credits

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3

Minor in Office Systems Administration

The Minor in Office Systems Administration is designed to offer students the opportunity to acquire additional knowledge and skills that will allow them to perform administrative support tasks in different offices.

All campuses are authorized to offer this minor.

Requisitos de la Concentración Menor en Administración de Sistemas de Oficina - 25 créditos

OMSY	1101	Information Processing Skills I	4
OMSY	1102	Information Processing Skills II	4
OMSY	2000	Production of Business Documents	4
OMSY	2060	Management of Documents and Daabases	4
OMSY	2230	Information Processing in Offices of Legal Affairs o	
OMSY	2240	Information Processing in Offices of Medical Service	3
OMSY	3030	Business Communication Workshop in Spanish o	
OMSY	3040	Business Communication Workshop in English	3
OMSY	3080	Office Systems Administration	3

Operations Management (B.B.A.)

Operations Management is an area of significant impact in business procedures. The aim of this Program is to provide the student with the knowledge for an effective application of production factors in manufacturing and service activities. Students must pass the required core and major courses with a minimum grade of C.

The Bayamón, Metropolitan and Ponce Campus are authorized to offer this Program. The Ponce Campus is also authorized to offer this Program through distance learning.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN OPERATIONS MANAGEMENT

General Education Requirements		48 credits
Core Course Requirements		41 credits
Major Requirements		21 credits
Prescribed Distributive Requirements		6 credits
Elective Courses		6 credits
	Total	122

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements - 41 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Communication Workshop in Spanish	
		or	
OMSY	3040	Communication Workshop in English	3

Major Requirements - 21 credits

BADM	3250	Transportation Management	3
BADM	3340	Management Policies and Strategies	3
BADM	3820	Managerial Science	3
BADM	4800	Operations Management	3
BADM	4820	Buying and Materials Management	3
ENTR	2200	Fundmentals of Entrepreneurship	3
INRE	2063	Industrial Safety and Occupational Health	3

Prescribed Distributive Requirements - 6 credits

Six (6) additional credits in 3000 and 4000 level courses in Business Administration (BADM).

Optical Science Technology (A.A.S.)

The course of studies for the applied science degree in Optical Science Technology has been designed to offer a university preparation that foments the development of the technical skills and the competencies of the profession. It also aims to provide a scientific base and the most recent knowledge in the optical science field.

The courses of the curriculum provide the understanding and the formal preparation that will permit an optical technician to demonstrate mastery in the performance of the functions and processes required in an optical laboratory. In addition, the courses are geared to prepare the technician to compete in the optical labor market in Puerto Rico and to take the professional validation examination. To graduate from this Program, all courses of the major must be passed with a minimum grade of C.

Admission Requirements

1. Meet the admission requirements established in the General Catalog of the University.
2. Provide a certificate of no criminal record.
3. Provide an updated certificate of health, issued by the Department of Health or an authorized doctor.
4. Provide a Certificate of Vaccination against Hepatitis B
5. Have a minimum high school grade point index of 2.25. In the case of transfer or intra transfer, the institutional norm will be followed.
6. Be available to perform the laboratory work and clinical practices in the centers authorized by the University

The Ponce Campus is authorized to offer this Program through classroom and distance learning.

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN APPLIED SCIENCE IN OPTICAL SCIENCE TECHNOLOGY

General Education Requirements		24 credits
Major Requirements		45 credits
	Total	69

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 45 credits

OPST	1000	Fundamentals of Optics	4
OPST	1001	Ophthalmic Materials I	3
OPST	1002	Ophthalmic Materials II	4
OPST	1020	Anatomy and Physiology of the Eye	3
OPST	2000	Legal Considerations of Optical Practice	2
OPST	2001	Contact Lenses I	2
OPST	2002	Contact Lenses II	2
OPST	2003	Contact Lenses II Laboratory	2
OPST	2010	Prescription Dispatch I	3
OPST	2011	Prescription Dispatch II	3
OPST	2020	Subnormal Vision	3
OPST	2911	Clinical Practice I	2

OPST	2912	Clinical Practice II	2
BIOL	1006	Fundamentals of Biology	4
ENDE	1100	Introduction to Entrepreneurial Development	2
PHYS	1013	General Physics and its Applications	4

Pharmacy Technician (A.A.S.)

The course of studies for the Associate of Applied Science Degree in Pharmacy Technician aims to develop technicians with the necessary knowledge and skills that will enable them to perform efficiently and responsibly as Pharmacy Technicians.

The Program is designed to offer the scientific knowledge and the necessary technical abilities to work in a pharmacy, handle technological equipment and comply with the regulations governing the profession.

Admission Requirements:

To be considered for admission, students must meet the following requirements:

1. Have a minimum high school or university grade point indez of 2.25.
2. Have an interview with the Associate of Applied Science Degree in Pharmacy Technician Coordinator or Committee.
3. Submit the following documents:
   a. a certificate of no criminal record
   b. a negative drug test
   c. a certificate of vaccination against Hepatitis B.

Retention Requirements

1. Meet the Academic Progress norms established in the General Catalog and those of the corresponding campus.
2. Pass all courses of the Program for the Associate of Applied Science Degree in Pharmacy Technician and the course Quantitative Reasoning (GEMA 1000) with a minimum grade of C.

The Aguadilla and Guayama campuses are authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN PHARMACY TECHNICIAN

General Education Requirements		24 credits
Major Requirements		50 credits
	Total	74

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 50 credits

PHAR	1150	Theoretical Pharmacy	3
PHAR	1155	Pharmaceutical Legislation	2
PHAR	1171	Applied Pharmacology I	3
PHAR	1180	Dosage	2
PHAR	1220	Human Anatomy and Physiology	3

PHAR	1221	Practical Pharmacy I	3
PHAR	1290	Pharmaceutical Mathematics	3
PHAR	2200	General Chemistry for Pharmacy Technician	3
PHAR	2210	Commercial Pharmacy	3
PHAR	2222	Pharmacy Practice II	3
PHAR	2260	Pharmacognosy	3
PHAR	2272	Applied Pharmacology II	3
PHAR	2890	Integration of Pharmacy Concepts of	2
PHAR	2913	Supervised Practice I	3
PHAR	2914	Supervised Practice II	4
PHAR	2915	Supervised Practice III	4
BIOL	1003	Basic Concepts of Biology	3

Photography (A.)

The Associate Degree in Photography is designed to provide theoretical and practical preparation in photography. Graduates will be able to work as professionals in artistic or commercial areas of the photographic field.

Admission Requirements

All students interested in this program must:

1. Meet the Admission Requirements established in the General Catalog of the University.
2. Possess a minimum high school grade point index of 2.50.
3. Students who initially do not meet the minimum requirements may be admitted to the program if upon finishing their first semester of studies (12 credits), they obtain a minimum general average of 2.50.

Transfer and Intra University Transfers Requirements

1. Meet the Admission Requirements for transfer students or intra university transfers established in the General Catalog of the University.
2. Have a minimum average of 2.50 in the university of origin.

Retention Requirements

1. Meet the Academic Progress Norms established in the General Catalog of the University.
2. Pass the courses required for the major with the minimum grade of C.

Graduation Requirements

1. Meet the Graduation Requirements established in the General Catalog of the University.
2. Complete all the Program requirements.
3. Obtain a minimum general average of 2.50.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN PHOTOGRAPHY

General Education Requirements		27 credits
Major Requirements		28 credits
	Total	55

General Education Requirements - 27 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3
GEPE	3010	Art Appreciation	3

Major Requirements - 28 credits

COMU	1025	Introduction to Graphic Production	3
COMU	1031	Photographic Techniques	3
COMU	1032	Advanced Photographic Techniques	3
COMU	2110	Advertising Design	3
COMU	2511	Computer Graphic Production I	3
COMU	2610	Theory and Techniques of Lighting in Photography	3
COMU	2621	Digital Photography I	3
COMU	2622	Digital Photography II	3
COMU	2915	Supervised Practice /Portfolio	4
COMU	3325	Photojournalism	3

Physical Therapy (A.S.)

The Program aims to develop a competent paraprofessional that can offer services of high quality in the rehabilitation field. It provides scientific knowledge based on concepts and principles from the natural sciences, social sciences and the humanities, as well as their applications to the field of the physical therapy. It is designed to prepare assistants of physical therapists that offer treatment to individuals whose functional capacity is limited or in risk of being limited due to some disease or injury.

The Program guides students to the awareness of intervention strategies in the rehabilitation process. Graduates will work under the supervision of a registered physical therapist in institutions such as general and specialized hospitals; rehabilitation and home care centers; clinics and private offices; schools and industries.

In order to obtain the permanent license in Puerto Rico, graduates must pass the tests offered by the Examining Board of Physical Therapy of Puerto Rico. To practice the profession in another jurisdiction, students must abide by the regulations in force in that area. The major requirements must be approved with a minimum grade of C.

Admission Requirements

1. Meet the admission requirements established in the Inter American University General Catalog.
2. Complete the application for admission to the Physical Therapy Program in the Department of the Health Sciences
3. Provide a certificate no criminal record issued by the police of Puerto Rico.
4. Provide a recent health certificate issued by the Health Department or an authorized doctor.
5. Provide evidence of vaccination against Hepatitis B.
6. Have minimum high school or equivalent grade point index of 2.50.
7. Have an interview with the faculty of the Program.

Retention Requirements

1. Meet all the academic progress norms established in the University's curent General Catalog.
2. Pass all major courses with a minimum grade of C and and maintain a minimum average of 2.00 upon completion of each academic term.
3. Students obtaining a grade less than C twice in the same course or in two courses of the major will be placed on probation for a period not greater than one academic year. Students, who, during the probationary period, do

not reach the required minimum grade point index may not continue in the Program, but may choose to request admission to another study program.

Graduation Requirements

Students must pass all major courses with a minimum grade of C.

The Ponce Campus is authorized to offer this Program.

REQUIREMENTS OF THE ASSOCIATE OF SCIENCE DEGREE IN PHYSICAL THERAPY

General Education Requirements		24 credits
Major Requirements		50 credits
	Total	74

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 50 credits

PHTH	1000	Introduction to Physical Therapy	3
PHTH	1010	Principles of Patient Care	3
PHTH	1211	Anatomy and Physiology I	4
PHTH	1212	Anatomy and Physiology II	2
PHTH	1222	Therapeutic Modalities	5
PHTH	1223	Pathology	3
PHTH	2050	Dimension of Incapacity	2
PHTH	2051	Communication Skills in Physical Therapy	2
PHTH	2053	Cardiopulmonary Physical Therapy	3
PHTH	2054	Kinesiology and Functional Anatomy	3
PHTH	2055	Human Growth and Development	2
PHTH	2151	Orthopedic Rehabilitation	3
PHTH	2350	Neurological Rehabilitation	4
PHTH	2921	Internship in Physical Therapy I	2
PHTH	2922	Internship in Physical Therapy II	3
PHTH	2923	Internship in Physical Therapy III	4
PHTH	2990	Integration Seminar	2

Political Science (B.A.)

The mission of the Political Science Program is to provide students with the theoretical and philosophical foundation of the principles of politics and to develop student skills in analyzing and interpreting the political scene and understanding political problems. The Program aims to prepare students to think independently, communicate effectively, understand and analyze complex political structures and how they work in the modern world.

The objective of this Program is to prepare students to work in careers related to public service and/or private enterprises, to continue studies in this discipline, law, diplomacy, journalism, communication media, consulting, lobbying, advertisement agencies and others.

The Metropolitan and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN POLITICAL SCIENCE

General Education Requirements		48 credits
Major Requirements		42 credits
Prescribed Distributive Requirements		15 credits
Elective Courses		6 credits
	Total	111

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees."

Major Requirements - 42 credits

POLS	1011	Introduction to Political Science	3
POLS	2040	Government of the United States	3
POLS	2088	The Government of the Commonwealth of Puerto Rico	3
POLS	2100	Political Analysis and Research Techniques	3
POLS	3080	Political Economics	3
POLS	3100	Comparative Government and Politics	3
POLS	3150	Introduction to International Relations	3
POLS	3401	Classic Political Thought	3
POLS	3402	Modern Political Thought	3
POLS	3501	Political Systems of Latin American	3
POLS		Seminar	3
Nine additional credits from the course of POLS at the 3000 or 4000 level			9

Prescribed Distributive Requirements - 15 credits

Fifteen (15) credits from the following courses, including at least three (3) credits in each of the following categories:

Empirical Applications

PSYC	3001	Statistical Methods I	
		or	
MAEC	2221	Basic Statistics	3
MAEC	2211	Principles of Economics (Micro)	3
MAEC	2212	Principles of Economics (Macro)	3
MATH	1070	Fundamentals of Applied Mathematics	3
SOCI	3645	Demography	3
POLS	3180	The Political Scientist and Computers	3

Government, Regulations and Laws

EVSC	2210	Environmental Policies, Laws and Regulations	
		or	
POLS	3800	Government, Ecology and Public Environmental Policy	3
SOCI	3825	The Puerto Rican Criminal Justice System	3
BADM	3313	Mercantile Law	
		or	
POLS	3170	International Conflicts	3
BADM	3312	Commercial Law II	
		or	
POLS	3200	Political Sociology	3

BADM	3320	Public Policies toward Business	
		or	
POLS	3050	Ethics, Religion and Politics	3
POLS	4110	Constitutional Law	3

Polysomnography (Professional Post Associate Certificate)

This advanced technical certificate is designed to prepare professional in health sciences involved in polysomnography laboratories: the study of sleep patterns and their abnormalities. Students will become qualified in the study of electroencephalography (EEG), (study of the electrical activity of the brain); electroculography (EOG), (study of the electrical activity of the eye) and electromyography (EMG), (study of the electrical muscle activity). This Certificate also includes the electrocardiology (ECG), (study of the electrical activity of the heart, as well as the effects of sleep on the respiratory system.

Admission Requirements

1. Have completed an Associate degree in a health related area.
2. Have a minimum grade point average of 2.25.
3. Submit evidence of the following:
   An up-to-date health certificate
   Vaccination certificate of Hepatitis B
   Certificate of no criminal record
   License and Registry
   Professional licensure (if applicable)
4. Approval of the course of Cardiopulmonary Resuscitation is required for students of health related areas.

The Ponce Campus is authorized to offer this Program.

Major Requirements - 13 credits

POLY	3000	Introduction to Polysomnography	3
POLY	3001	Foundations of PolysomnographyI	3
POLY	3002	Fundamentos de Polysomnography II	3
POLY	3101	Clinical Polysomnography I	2
POLY	3102	Clinical Polysomnography II	2

Popular Music (A. and B.A.)

Associate Program

This program aims to prepare students to face the demanding professional world of popular music; in the areas of the vocal or instrumental performance and the improvisation. This technical preparation is complemented with courses of the history of classic, popular and Puerto Rican music. Likewise, the theoretical courses allow the student to be exposed to the fundamental structures of music as a discipline. The program is designed to develop a competent performer, in his particular level, and in addition, to be aware of his role as an artist within our society. It also offers beginning students, preparatory courses that allow them to obtain the minimum level of performance in their main instrument and in the theoretical foundations of music required to enter the regular program.

Admission Requirements

1. All students interested in admission to the Program must take an entrance examination that will be offered at the beginning of each academic term before academic activities start. This examination is composed of two parts:
   a. A written test on music theory and a practical test on auditory discrimination, rhythm and intonation.
   b. An audition before a jury in the principal instrument.

2. Admission to the Program will be made in one of the following ways:
   a. Students who pass the entrance examination may be placed in the regular program (first year) at the discretion of the jury.
   b. Students that do no pass the entrance examination and show musical ability must take from three (3) to twelve (12) credits in the preparatory component in accordance with their level of performance on the instrument, and on their knowledge and skills in theory and sight singing. The preparatory component courses may only be taken a maximum of two (2) times.

Preparatory Component

MUSI	0531, 0532	Music Theory and Sight Singing (6 credits
		Principal Instrument (2 semesters, 2 credits)
MUSI	0501, 0502	Flute
MUSI	0511, 0512	Piano
MUSI	0521, 0522	Puerto Rican Cuatro
MUSI	0541, 0542	Saxophone
MUSI	0551, 0552	Trumpet
MUSI	0571, 0572	Trombone
MUSI	0581, 0582	Bass
MUSI	0591, 0592	Guitar
MUSI	0601, 0602	Drums
MUSI	0611, 0612	Percussion
MUSI	0641, 0642	Voice

   c. All students that demonstrate a high level of performance, theoretical knowledge, and skill in sight singing in the entrance examination may receive a total of six credits in their principal instrument. Each case will be evaluated individually by the jury.

Academic Progress Requirements

In order to remain as a student of the Associate of Arts Degree Program in popular music the student must meet the following progress requirements:

1. Have a minimum grade of C in the major courses. A minimum grade of B is required in the theory and sight singing classes, and in the main instrument classes.
2. The courses that are evaluated by a jury must be passed with a minimum grade of B.

Graduation Requirements

In order to complete the Associate of Arts Degree Program in popular music students must meet the requirements established by the University for Associate Degrees and complete a total of 77 academic credits that include:

1. The academic requirements of General Education.
2. The academic requirements of the Associate Degree in popular music.
3. Present the 25 minute Graduation Recital recorded in audio and video.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN POPULAR MUSIC

General Education Requirements		24 credits
Major Requirements		53 credits
	Total	77

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 53 credits

MUSI	1122, 1123, 1124	Comparative History of Music I, II, III	9
MUSI	1323, 2324,	Instrumental Ensemble I, II,	
	or		
MUSI	1333, 1334	Choral Ensemble I, II	4
MUSI	1531, 1532	Theory and Sight Singing I, II	6
MUSI	1563, 1564	Group Piano I, II	
	or		
MUSI	1661, 1662	Group Guitar I, II	4
MUSI	2000	Digital Musical Notation	3
MUSI	2531	Improvisation I	3
MUSI	2532	Improvisation II	3
MUSI	2623, 2624	Harmony I, II	6
MUSI	2703	Graduation Concert	3

Students will take 12 credits in performance on their principal instrument from the following courses:

Principal Instrument - 4 Academic Terms - 12 credits

MUSI	1501, 1502, 2503, 2504	Flute
MUSI	1511, 1512, 2513, 2514	Piano
MUSI	1521, 1522, 2523, 2524	Puerto Rican Cuatro
MUSI	1541, 1542, 2543, 2544	Saxophone
MUSI	1551, 1552, 2553, 2554	Trumpet
MUSI	1571, 1572, 2573, 2574	Trombone
MUSI	1581, 1582, 2583, 2584	Bass
MUSI	1591, 1592, 2593, 2594	Guitar
MUSI	1601, 1602, 2603, 2604	Drums
MUSI	1611, 1612, 2613, 1614	Percussion
MUSI	1631, 1632, 2633, 2634	Violin
MUSI	1641, 1642, 2643, 2644	Voice (Singing)
MUSI	1651, 1652, 2653, 2654	Viola
MUSI	1671, 1672, 2673, 2674	Cello

Bachelor's Program

The aim of the Program is to develop highly competent musicians with a clear sense of their social responsibility and the historical development of music. Specifically, the program aims to train competent musicians for performance and improvisation in their main instrument at the corresponding level. It also aims to produce musicians able to incorporate technology to their creative process. The program is oriented to develop musicians with an inquisitive, analytical and critical attitude towards the art of music in all its expressions; to form musicians with an ample theoretical base that permits them to face the demanding world of music; to produce musicians receptive to the constant movement of technology in the music field and to prepare musicians who have the practical experiences that allows them to appear professionally in public.

The Program offers preparatory courses to enable students to attain the minimum required performance level in their principal instrument and/or in the theoretical foundations of music required for admission into the regular program. Students in the bachelor's program in popular music must own a principal instrument.

Admission Requirements

1. All students interested in admission to the Program must take an entrance examination composed of two parts:
   a) A written and practical test of Music Theory and sight singing.
   b) An audition before a jury of professors in the principal popular instrument.

2. Three options will be established for admission to the Program:
   a) Students who pass the entrance examination will be placed in the regular program (first year).

Candidates who do not pass the entrance examination and demonstrate musical ability must take from three to twelve credits in the preparatory component in accordance with their level of performance.

Graduation Requirements

In order to complete the Bachelor of Arts Degree in Popular Music, students must meet the requirements established by the University for the Baccalaureate Degrees complete a total of 129 academic credits that include:

1. The General Education. Requirements.
2. The Popular Music major requirements.
3. Present a 45 minute Graduation Recital recorded in audio and video.

Preparatory Component

MUSI	0531, 0532	Music Theory and Sight Singing (2 semesters, 6 credits) Principal Instrument (2 semesters, 2 credits)
MUSI	0501, 0502	Flute
MUSI	0511, 0512	Piano
MUSI	0521, 0522	Puerto Rican Cuatro
MUSI	0541, 0542	Saxophone
MUSI	0551, 0552	Trumpet
MUSI	0571, 0572	Trombone
MUSI	0581, 0582	Bass
MUSI	0591, 0592	Guitar
MUSI	0601, 0602	Drums
MUSI	0611, 0612	Percussion
MUSI	0641, 0642	Voice

All students who show a high level of performance in the entrance examination will receive a total of from three to six credits in music theory and sight singing and from three to six credits in their principal instrument.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN POPULAR MUSIC

General Education Requirements		48 credits
Major Requirements		78 credits
Elective Courses		3 credits
	Total	129

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees."

Major Requirements - 78 credits

MUSI	1122, 1123, 1124	Comparative History of Music I, II, III	9
MUSI	1323, 1324, 2326, 2327	Instrumental Ensemble I, II, III, IV*	
	or		
MUSI	1333, 1334, 2335, 2336	Choral Ensemble I, II, III, IV*	8
MUSI	1531, 1532	Theory and Sight Singing I, II	6
MUSI	1563, 1564	Group Piano I, II**	
	or		
MUSI	1661, 1662	Group Guitar I, II**	4
MUSI	2000	Digital Musical Notation	3
MUSI	2531, 2532, 2533	Improvisation I, II, III	9
MUSI	2623, 2624, 2625	Harmony I, II, III	9
MUSI	3901	Composition I	3
MUSI	4724	Arrangements I	3
MUSI	4734	Recording (M.I.D.I. Room) I	3
MUSI	4803	Graduation Concert	1

*These may be combined. The total must be eight (8) credits
**Choose between Guitar and Piano.

NOTE: Sixty (60) credits plus 18 credits that students will take in the performance of their principal instrument.

MUSI	1501, 1502, 2503, 2504, 3505, 3506	Flute
MUSI	1511, 1512, 2513, 2514, 3515, 3516	Piano
MUSI	1521, 1522, 2523, 2524, 3525, 3526	Puerto Rican Cuatro
MUSI	1541, 1542, 2543, 2544, 3545, 3546	Saxophone
MUSI	1551, 1552, 2553, 2554, 3555, 3556	Trumpet
MUSI	1571, 1572, 2573, 2574, 3575, 3576	Trombone
MUSI	1581, 1582, 2583, 2584, 3585, 3586	Bass
MUSI	1591, 1592, 2593, 2594, 3595, 3596	Guitar
MUSI	1601, 1602, 2603, 2604, 3605, 3606	Drums
MUSI	1611, 1612, 2613, 1614, 3615, 3616	Percussion
MUSI	1631, 1632, 2633, 2634, 3635, 3636	Violin
MUSI	1641, 1642, 2643, 2644, 3645, 3646	Voice
MUSI	1651, 1652, 2653, 2654, 3655, 3656	Viola
MUSI	1671, 1672, 2673, 2674, 3675, 3676	Cello

Minor in Anthropology and History of Music

The Minor in Anthropology and History of Music is a complementary academic offering to the Bachelor of Arts in Popular Music. The program studies music from the point of view of human activity and circumstances. It develops the skills of inquiry, reading, writing and the interpretation of human musical acts. It applies the knowledge of investigation, administration and basic organization of documents and musical ethnographic material. The ethnographic-historical study begins with the immediate context of Puerto Rico, the area of the Great Caribbean and the Americas to human musical endeavors as a global phenomenon.

Requirements for Declaring the Minor in Anthropology and History of Music

In order to declare this minor, students must have been accepted to the Bachelor of Arts Program in Popular Music and have approved course MUSI 1123 Comparative History of Music II.

The Metropolitan Campus is authorized to offer this minor.

Requirements for the Minor in Anthropology and History of Music – 18 credits

MUSI	2060	Anthropology and History of Music	3
MUSI	2070	Methods and Theories of Musical Research	3
MUSI	2080	Paradigms in Anthropology and History of Music	3
MUSI	3020	Music and Research: Archives	3
MUSI	3030	Music and Research: Field Work	3
MUSI	3040	Music and Research: Design and Writing	3

Minor in Sacred Music

The Minor in Sacred Music offers students training in musical theory as well as in musical techniques. It exposes students to the hermeneutic and liturgical study of sacred music as well as to its historical and contextual study. In addition, it allows them to perform as musicians in churches, to be developed in the area of religious music and to form instrumental or vocal groups in churches.

Requirements for Declaring the Minor in Sacred Music

In order to declare the minor in Sacred Music the approval of the Academic Adviser and of the Director of the Department of Popular Music is required, and passing the preparatory courses of Theory and Sight Reading I and II is required before continuing with the remaining courses of the minor.

The Metropolitan Campus is authorized to offer this minor.

Requirements for the Minor in Sacred Music - 21 credits

MUSI	0531	Preparatory Music Theory and Sight Reading I	3
MUSI	0532	Preparatory Music Theory and Dight reading II	3
MUSI	1126	Christian Music History	2
MUSI	2020	Liturgical Function of Music	2
MUSI	2030	Choral Conducting and Management	
		or	
MUSI	2040	Instrumental Conducting and Management	3
MUSI	2050	Sacred Music Ensemble	2

Six credits selected from the following courses:*

MUSI	0511	Preparatory Piano I	3
MUSI	0591	Preparatory Guitar I	3
MUSI	0641	Preparatory Voice I	3

* Students will take 6 credits in the courses from the component of Preparatory Music where they will take an instrument: piano or guitar and voice. Students whose major is Popular Music and their main instrument is piano or guitar, must take the course of the instrument that is not theirs. Those students whose preparation is in Voice will take Piano and Guitar.

Psychology (B.A.)

The Program of studies for the Bachelor of Arts Degree in Psychology is designed to provide the student with the basic knowledge and skills needed to make a start in the psychology field. The curriculum has a particular emphasis on developing the student's capacity for critical judgment and providing a base to continue graduate studies.

The Aguadilla, Fajardo, Metropolitan and San Germán campuses are authorized to offer this Program. In addition, the Ponce Campus is authorized to offer this Program through dictance learning.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN PSYCHOLOGY

General Education Requirements		48 credits
Major Requirements		51 credits
Prescribed Distributive Requirements		6 credits
Elective Courses		12 credits
	Total	117

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees."

Major Requirements - 51 credits

PSYC	1051	General Psychology I	3
PSYC	1052	General Psychology II	3
PSYC	2000	Writing in Psychology	1
PSYC	3001	Statistical Methods I	3
PSYC	3002	Statistical Methods II	3
PSYC	3100	Learning	3
PSYC	3113	Physiological Psychology	3
PSYC	3300	Social Psychology	3
PSYC	4000	Fundamentals of the Psychological Interview	3
PSYC	4103	Community Intervention	3
PSYC	4113	Contemporary Theories	3
PSYC	4200	Principles of Psychological Testing	3
PSYC	4213	Psychopathology	3
PSYC	4234	Psychology of Personality	3
PSYC	4600	Experimental Psychology	4
ANTH	2030	Social Anthropology	3
BIOL	1006	Fundamentals of Biology	4

Prescribed Distributive Requirements - 6 credits

Six credits from the following courses.

PSYC	3220	Developmental Psychology	3
PSYC	3268	Introduction to Counseling and Psychotherapy	3
PSYC	3313	Industrial/Organizational Psychology	3
PSYC	3315	Introduction to School Psychology	3
PSYC	4100	Behavior Modification	3
PSYC	4210	Cognitive Psychology	3
PSYC	4313	Organizational Development	3
PSYC	4520	Crisis Intervention	3
PSYC	4970	Seminar	3
SOWO	3566	Women in Society	3
		or	
SOWO	4220	Gender, Society and Culture	3
SOWO	4873	Social Scientific Research Methodology	4

Minor in Intervention and Stabilization of Clients in Crisis Situations

The Minor in Intervention and Stabilization of Clients in Situations of Crisis aims to strengthen the knowledge and the skills in the students that they need to perform better their role as care suppliers in this type of situation.

The San Germán Campus is authorized to offer this minor.

Requirements for the Minor in Intervention and Stabilization of Clients in Situations of Crisis - 24 credits

PSYC	1051	General Psychology I	3
PSYC	3144	Motivation and Emotion	3
PSYC	3220	Sicología of the Development	3
PSYC	4000	Foundations of Psychological Interview	3
PSYC	4520	Intervention in Crisis	3
HUSE	3010	Violence and I mistreat in Family	3
HUSE	3220	Intervention with Families in Conflict	3
HUSE	4010	Ethical, Technical and Legal Concepts in the Benefit of Human Services	3

Psychosocial Human Services (B.A.)

The Bachelor of Arts degree in Psychosocial Human Services has the main purpose of preparing students in the disciplines that allow them to work as professionals in the areas of psychosocial problems. The curriculum is interdisciplinary in nature with knowledge branching out to psychology, sociology, and social work with emphasis on prevention and treatment of psychosocial problems.

Emphasis will be given to the development of intellectual skills, attitudes and values that will help students become successful in their profession and as members of society.

The Aguadilla Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN PSYCHOSOCIAL HUMAN SERVICES

General Education Requirements		48 credits
Major Requirements		49 credits
Prescribed Distributive Requirements		6 credits
Specialization Requirements		15 credits
Elective Courses		6 credits
	Total	124

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Of the nine credits required in the category Historic and Social Context, students will take courses 2010 and 3040 and one additional course from the remaining courses of the same category.

Major Requirements - 49 credits

HUSE	2020	Contemporary Puerto Rican Family	3
HUSE	3200	Clinic Interview	3
HUSE	4010	Ethical Concepts in Human Services	3
HUSE	4030	Neuropsychology	3
HUSE	4974	Seminar in Positive Life Styles	3
PSYC	1051	General Psychology I	3
PSYC	1052	General Psychology II	3
PSYC	3001	Statistical Methods I	3
PSYC	3221	Life Cycle I	3
PSYC	3222	Life Cycle II	3
PSYC	3268	Introduction to Counseling and Psychotherapy	3
PSYC	4200	Principles of Psychological Testing	3
PSYC	4213	Psychopathology	3
PSYC	4234	Psychology of Personality	3
PSYC	4520	Crisis Intervention	3
SOWO	4873	Social Scientific Research Methodology	4

Prescribed Distributive Requirements - 6 credits

Select 6 credits from the following courses:

PSYC	4313	Organizational Psychology	3
SOCI	3753	Social Problems of Puerto Rico	3
SOCI	3825	The Puerto Rican Criminal Justice System	3
SOWO	3566	Women's Affairs	3

Specialization Requirements - 15 credits

One of the following specializations is required

Dysfunctional Families (Psychosocial Human Services)

HUSE	3010	Domestic Violence and Intervention	3
HUSE	3035	Childhood and Adolescence Emotional, Cognitive and Behavior Problems	3
HUSE	3220	Family Conflicts Intervention	3
HUSE	4020	Psychotherapeutic Treatment Techniques for Childhood and Adolescence Dysfunctional Behavior	3
HUSE	4910	Internships in Dysfunctional Families	3

Drug and Alcohol Prevention (Psychosocial Human Services)

HUSE	3110	Legal Basis for Addiction	3
HUSE	3120	Preventive Models in Drug and Alcohol Use	3
HUSE	3130	Intervention Models with Addictive Behaviors	3
HUSE	4913	Internship in Drug and Alcohol Prevention	3
CJUS	4020	Alcoholism and Drug Addiction	3

Radiological Science (B.S.)

The Bachelor of Science in Radiological Sciences offers a comprehensive educational program for students who have an Associate Degree in Radiological Technology and for certified radiological technologists. The main purpose of the Program is the development of clinical competence in advanced modalities of diagnostic images: Computerized Tomography and Magnetic Resonance.

The Program is designed to allow the student to develop personally and professionally through participation in a variety of didactic and clinical learning experiences. These include cognitive, psychomotor and affective components with scientific knowledge based on concepts and principles of the natural and social sciences, and the humanities; in addition to other sciences related to the discipline.

As a health related science, radiological science is deals with patient health and well-being through diagnosis and treatment of diseases by means of the creation of medical images using X-rays, ultrasound and nuclear magnetic resonance. The specialists in diagnostic images work in collaboration with radiologists and other medical specialists.

It is expected that graduates of this Program be prepared to work in different scenarios such as: general and specialized hospitals, medical, offices, specialized clinics, educational institutions, public health institutions, companies dealing in medical equipment, in industry, and others.

Admission Requirements

Candidates aspiring to enter this Program must meet the following requirements:

1. Submit evidence of having completed the graduation requirements for the Associate Degree in Radiological Technology in a properly accredited institution.
2. Have a minimum grade point average of 2.50
3. Meet the admission requirements established in the General Catalog of Inter American University of Puerto Rico.
4. Present two letters of recommendation from professors who know you as a student.
5. Be interviewed by the admission committee of and/or the Program coordinator.
6. Present a current copy of the following documents:

    - Health Certificate
    - Certificate of Immunization against Hepatitis B
    - Certificate of no Criminal Record provided by the Police of Puerto Rico

In addition to the above admission requirements, candidates who come from other institutions will be evaluated according to the curricular program of that institution and the necessary course adjustments will be determined.

Retention Requirements

1. Meet the academic progress norms established in Inter American University's General Catalog.
2. Pass all major courses with minimum grade of C.
3. All students failing in the same major course on two occasions will be placed on probation in the Bachelor's Program in Radiological Sciences. If they fail the same course during the probationary period, they will be dropped from the Program.
4. Once students are assigned to a clinical center, they must attend according to the schedule established by the professor and Program coordinator.

Graduation Requirements

1. Meet the graduation requirements established in Inter American University's General Catalog.
2. Pass all major courses with a minimum grade of C.

The Barranquitas, Ponce and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE OF BACHELOR OF SCIENCE DEGREE IN RADIOLOGICAL SCIENCES WITH A MAJOR IN COMPUTERIZED TOMOGRAPHY AND MAGNETIC RESONANCE

Associate Degree Requirements in Radiological Technology		84 credits
General Education Requirements at the Bachelor's Level		18 credits
Major Requirements		30 credits
	Total	132

General Education Requirements - 18 credits

In order to receive the Bachelor of Science Degree in Radiological Sciences, students must take 18 credits in General Education in addition to the 24 credits approved for the Associate Degree. These 18 credits will be taken as follows: in the Philosophical and Esthetic Thought category, course GEPE 4040 and a course from among 2020, 3010 and 3020; in the Basic Skills in Spanish category, course GESP 2203; in the Basic Skills in English category, course GEEN 1103; in the Scientific and Technological Context category, either course GEST 2020 or 3030; in the Historical and Social Context category a course from among GEHS 3020, 3040 and 4030.

Major Requirements - 30 credits

CTMR	3030	Physical Principles of Computerized Tomography and Magnetic Resonance	3
CTMR	3040	Procedures and Images I	3
CTMR	3041	Procedures and Images II	3
CTMR	4020	Procedures and Images III	3
CTMR	4021	Procedures and Images IV	3
CTMR	4911	Internship I	3
CTMR	4912	Internship II	3
CTMR	4913	Internship III	3
RASC	4000	Research in Radiological Sciences	3
RASC	4030	Professional Seminar	3

Radiological Technology (A.A.S., B.S.)

Associate Program

This Program was created to prepare radiological technologists that make up the health professionals responsible for performing radiographic procedures through the use of radiological diagnostic equipment.

The mission of the Associate Degree in Science Program in Radiological Technology has its roots in the mission of Inter American University of Puerto Rico.

This mission is achieved through the following goals:

1. To establish an academic program that responds to student needs and those of the society the Program serves.
2. To develop a curriculum in harmony with the practice standards established by the regulating agencies of the discipline.
3. To provide students with the knowledge and necessary educational experiences that will permit them to pass the revalidation examination.
4. To prepare professionals to be members of an interdisciplinary health team that will carry out its functions in a safe, effective and competent manner.
5. To promote learning as a continuous process so that these professionals keep updated in their field of specialty once they enter the world of work.

Various health institutions in different parts of the Island participate as affiliates in clinical instruction. Each campus will determine the maximum number of students to be admitted per year based on the facilities and

resources available to attend to of them. Students who aim to complete the Associate Degree in Applied Sciences in Radiological Technology must meet the Program's following specific admission requirements:

1. Be admitted to Inter-American University of Puerto Rico, in a campus authorized to offer the Program.
2. Submit a completed admission application on or before the date stipulated by the Program.
3. Present an official and updated transcript of recent studies.
4. Have a general grade point average of at least 2.50.
5. Present two (2) letters of recommendation from professors who know them as students.

Admission Procedure

1. The transcript of courses taken and credits will be evaluated.
2. The absolute value of the general grade index (GPA) will be considered from 2.50 in a scale of 4.0.
3. Each course taken will be assigned a value in accordance with its credit value. The assigned value will be multiplied by the numerical value of the grade obtained (A = 4 points, B = 3 points, C = 2 points)
4. High school students:
   The scores of the completed courses will be added (Biology, Chemistry, Physics and Introduction to Computers), the total is divided by the total of credits taken and this total is multiplied by the number of courses for a total of from 0 to 16 points. (Total points ÷ total of credits = ___ total x of taken courses (maximum 4) = __)
   Present evidence of the test results of the Prueba de Evaluacion de Admision Universitaria (PEAU). Points will be awarded in agreement with the score obtained in the "PEAU" in English and mathematics, (450-549 - 2 points, 550-649 - 3 points, 650 or over - 4 points) until a total of 8 points, for a final score of 24 points.
   University students:
   The scores of the completed courses or their equivalent will be added (Basic Concepts of Biology, Human Anatomy and Physiology, Intermediate Algebra, Psychology, Introduction to Computers and English) and divided by the total of credits taken and multiplied by the total number of courses (maximum of 6) up to a total of 24 points (Total points ÷ total credits = _ _ total x of courses taken (maximum of 6) = ____)
5. One point (1) will be granted for attendance at the Program orientation.
6. One point (1) will be granted if the applicant has experience in health related professions.
7. A two point (2) bonus will be granted if it is second-time application.
8. The total of points will be added for the final maximum score of 30 points.
9. The applicants will be ordered in descending order from the highest to the lowest score and those with the highest scores will be selected. The maximum number of students per year will be determined based on the facilities and resources available to take care of them.
10. The candidates will be informed of the decision of the Admissions Committee.

After admission, students must present:

two (2) photos 2 x 2
a health certificate
evidence of vaccination against Hepatitis B
a certificate of no criminal record

Retention Requirements

1. Meet the academic progress norms established in Inter-American University's General Catalog.
2. Pass all major courses with a minimum grade of C, including courses BIOL 1003, 2151 and 2152.
3. Students who fail on two occasions in the same major course will be put on probation in the Radiological Technology Program. If they fail during the probationary period in the same course, they will be dismissed from the Program.
4. Once students are assigned to a clinical affiliate, they must attend as programmed by the Program Office. Three (3) or more days of absence during the semester in a course with clinical practice, without reasonable justification, will result in the student being dropped from the course.

Transfer Requirements

1. Comply with all admission norms for transfer students established in the General Catalog and in that of the corresponding Campus.
2. The Director of the Program or the Director's authorized representative will evaluate the file and determine the equivalences.

The Aguadilla, Barranquitas, Ponce, and San Germán, campuses are authorized to offer this Program.

The Program of the San Germán Campus is accredited by the national accrediting board, Joint Review Committee on Education in Radiologic Technology (JRCERT).

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN APPLIED SCIENCES IN RADIOLOGICAL TECHNOLOGY

General Education Requirements		24 credits
Major Requirements		49 credits
Prescribed Distributive Requirements		12 credits
	Total	85

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEHS	2010	Historical Process of Puerto Rico	3
GEIC	1010	Information and Computer Literacy	3
GEMA	1200	Fundamentals of Algebra	3

Major Requirements - 49 credits

RATE	1100	Radiation Protection	1
RATE	1110	Patient Care	2
RATE	1125	Introduction to Radiological Technology	2
RATE	1221	Radiographic Procedure and Evaluation I	2
RATE	1230	Principles of Radiographic Exposition and Processing	3
RATE	2080	Contrast Media	1
RATE	2210	Critique and Radiographic Quality Control	3
RATE	2222	Radiographic Procedures and Evaluations II	2
RATE	2223	Radiographic Procedures and Evaluations III	2
RATE	2231	Radiological Physics I	3
RATE	2232	Radiological Physics II	3
RATE	2240	Radiographic Pathology and Medical Terminology	3
RATE	2250	Sectional Anatomy	2
RATE	2260	Radiobiology	2
RATE	2270	Diagnostic Image Modalities and Equipment	2
RATE	2911	Clinical Practice I	2
RATE	2912	Clinical Practice II	3
RATE	2913	Clinical Practice III	3
RATE	2917	Clinical Practice IV	4
RATE	2918	Clinical Practice V	4

Prescribed Distributive Requirements - 12 credits

BIOL	1003	Basic Concepts of Biology	3
BIOL	2151	Anatomy and Human Physiology I	3

BIOL	2152	Anatomy and Human Physiology II	3
EGHS	3030	Human Formation in the Contemporary Society	3

Bachelor's Program

This Program is designed develop students academically in the areas of radiological imaging and provides students the option of obtaining a diploma of Associate Degree in Applied Sciences in Radiological Technology upon completing the 84 required credits for the major. In addition, it aims to offer professionals who have obtained an Associate Degree in Radiological Technology from an accredited university, the opportunity to continue studies leading to the Bachelor of Science Degree in Radiological Technology with a major in Mammography and Angiography. The practice courses will be offered in different structured scenarios in affiliated and certified health institutions where the student will develop the required knowledge, skills and competencies to offer a quality service.

The Program aims to prepare health professionals capable of applying the knowledge of the components of mammography and angiography equipment to the identification of the diverse pathologies related to the study area. This professional will be able to make structured radiological studies in the areas of mammography and angiography that facilitate the analysis and interpretation of the results so that patient diagnoses can be made with a greater degree of precision. In addition, they will demonstrate a respectful attitude towards the patient by observing the professional ethics code and the Confidentiality Law (HIPAA).

Graduates from the Program will have a high sense of humanism, sensitivity and commitment to the profession, and will possess traits that will be shown by means of their effective work with the health team that intervenes in the diagnosis and treatment of diseases.

The Radiological Diagnosis Technology profession requires a license granted by the Examining Board of Radiology Technicians, after satisfactory approval of a revalidation examination. As a result of the formative process of the graduates of the Program, they will be capable of taking and to approving the evaluation required to exercise the profession.

Admission Requirements

Students who aspire to the Bachelor of Science Degree in Radiological Technology with a major in Mammography and Angiography must fulfill the following general admission requirements of the Program:

1. Submit a completed admissions application in or before the date stipulated by the Program.
2. Present an official and updated transcript of credits of recent studies.
3. Have a general grade index of 2.50 more.
4. Submit two (2) letters of recommendation from professors who know you as a student.
5. Be interviewed by the Admissions Committee of the Program.
6. After admission, submit:
   a) two (2) photos 2 x 2
   b) a health certificate
   c) proof of vaccination against Hepatitis B
   d) a certificate of no criminal record

Transfer Requirements

1. Meet all admission requirements for students transferring from another University campus or transfers established in the University's General Catalog and by the corresponding Campus.
2. Both the Associate Director of Sciences and Technology and the Academic Coordinator of the Program must authorize all transfers or combined registration.
3. Have a minimum average of 2.50 in the major courses and have a certificate or an Associate Degree in Radiological Technology from a recognized and accredited Higher Education institution. If more than five (5) years have passed since finishing the Associate Degree, an active license, as Radiological Technologist must be presented.

Graduation Requirements

To complete the Bachelor of Science Degree in Radiological Technology with a major in Mammography and Angiography the student must:

1. Have passed major courses with a minimum average of 2.50.
2. Have obtained a minimum overall grade index of 2.00 points.

The Aguadilla and Barranquitas campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN RADIOLOGICAL TECHNOLOGY WITH A MAJOR IN MAMMOGRAPHY AND ANGIOGRAPHY

General Education Requirements		45 credits
Core Course Requirements		12 credits
Major Requirements		69 credits
Elective Courses		3 credits
	Total	129

General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students of this Program will take GEMA 1200 in the Basic Skills in Mathematics category. They are exempt from taking the course GEHP 3000.

Core Course Requirements - 12 credits

BIOL	1003	Basic Biological Concepts	3
BIOL	2151	Human Anatomy and Physiology I	3
BIOL	2152	Anatomy and Human Physiology II	3
GEHS	3030	Human Formation in Contemporary Society	3

Major Requirements - 69 credits

RATE	1100	Radiation Protection	1
RATE	1110	Patient Care	2
RATE	1125	Introduction to Radiological Technology	2
RATE	1221	Radiographic Procedures and Evaluation I	2
RATE	1230	Principles of Radiographic Exposition and Processing	3
RATE	2080	Contrast Media	1
RATE	2210	Critique and Radiographic Quality Control	3
RATE	2222	Radiographic Evaluation and Procedures II	2
RATE	2223	Radiographic Evaluation and Procedures III	2
RATE	2231	Radiological Physics I	3
RATE	2232	Radiological Physics II	3
RATE	2240	Radiographic Pathology and Medical Terminology	3
RATE	2250	Sectional Anatomy	2
RATE	2260	Radiobiology	2
RATE	2270	Diagnostic Image and Modalities Equipment	2
RATE	2911	Clinical Practice I	2
RATE	2912	Clinical Practice II	3
RATE	2913	Clinical Practice III	3
RATE	2917	Clinical Practice IV	4
RATE	2918	Clinical Practice V	4
RATE	3050	Mammographic Quality Control	3
RATE	3060	Creation of Radiographic Images in Computer	1

RATE	3070	Breast Anatomy and Pathology	2
RATE	3080	Radiographic Procedure and Evaluation of the Breast	3
RATE	3090	Fundamentals of Angiography	3
RATE	4910	Clinical Practice in Mammography	4
RATE	4911	Clinical Practice in Angiography	4

Religion (A.A. and B.A.)

Associate Program

The Associate of Arts Degree in Studies in Religion aims to offer a degree that permits students to move to the Bachelor of Arts Degree to form facilitators capable of offering ecumenical instruction in harmony with the particular needs of society.

The Metropolitan Campus is authorized to offer this Program through classroom and distance learning.

REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN STUDIES IN RELIGION

General Education Requirements		24 credits
Major Requirements		42 credits
Elective Courses		3 credits
	Total	69

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 42 credits

RELI	2023	Biblical Archaeology and Geography	3
RELI	3013	The Old Testament	3
RELI	3024	The New Testament	3
RELI	3026	History of Israel	3
RELI	3034	Spirituality	3
RELI	3065	Christian Ethics in an Ecumenical Context	3
RELI	4100	Christian Education	3
RELI	4300	Christian Education Curriculum	3
RELI	4353	Philosophy of Religion	3
RELI	4910	Internship in Religion	3
EDUC	2021	History and Philosophy of Education	3
EDUC	2031	Developmental Psychology	3
EDUC	3610	Groups Processes in the Classroom	3
PSYC	4213	Psychopathology	3

Bachelor's Program

The courses in religion are in harmony with the Christian ecumenical orientation of the University and the official norms regarding this, which appear in this Catalog under "Religious Life Policy". The Institutional goal is to develop individuals with an ecumenical perspective who: 1) understand the Christian faith and its implications for our culture; 2) know and respect the most important aspects of the world's major religions, and 3) know and

appreciate the study of religion in a university curriculum which maintains a dynamic and harmonious relationship between faith and critical reasoning; and between religion and the arts and sciences.

The Bachelor of Arts degree in Studies in Religion aims to forge facilitators capable of offering ecumenical instruction in agreement with the particular needs of society. The religion curriculum provides the option of an Associate of Arts degree in religion and allows students the option of continuing studies toward a Bachelor of Arts degree in Studies in Religion.

The Fajardo and Metropolitan Campuses are authorized to offer this Program. The Metropolitan campus is also authorized to offer this Program through distance learning.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN STUDIES IN RELIGION

General Education Requirements		48 credits
Major Requirements		54 credits
Elective Courses		13 credits
	Total	115

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees."

Major Requirements - 54 credits

RELI	2023	Biblical Archaeology and Geography	3
RELI	3013	The Old Testament	3
RELI	3024	The New Testament	3
RELI	3026	History of Israel	3
RELI	3034	Spirituality	3
RELI	3065	Christian Ethics in an Ecumenical Context	3
RELI	3220	Principles of Church Growth	3
RELI	3326	History of Christianity	3
RELI	4100	Christian Education	3
RELI	4300	Christian Education Curriculum	3
RELI	4353	Philosophy of Religion	3
RELI	4910	Internship in Religion	3
EDUC	2021	History and Philosophy of Education	3
EDUC	2031	Developmental Psychology	3
EDUC	3610	Groups Processes in the Classroom	3
PSYC	3268	Introduction to Counseling and Psychotherapy	3
PSYC	4213	Psychopathology	3
SPAN	3015	Oral Communication	3

Restaurant and Food Services Administration (A.A.S)

The course of studies for the Associate in Applied Science Degree in Restaurant and Food Services Administration is designed for people who wish to acquire skills in dealing with food services. The Program exposes students to principles, concepts and practices that are essential in the food services industry. This Program provides the opportunity for people who already have experience in administration of food services to complete an academic degree and be promoted to supervisory positions. The program aims to prepare graduates for positions in areas such as food service, production, sales and marketing, and in human resources management and supervision. In addition, graduates will have become familiar with different food services to enable them to apply their administrative knowledge to each of them.

The Aguadilla Campus is authorized to offer this Program.

REQUIREMENTS OF THE ASSOCIATE IN APPLIED SCIENCE DEGREE IN RESTAURANT AND FOOD SERVICES ADMINISTRATION

General Education Requirements		24 credits
Major Requirements		43 credits
	Total	67

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3
GEHS	2010	Historical Process of Puerto Rico	3
GEMA	1200	Fundamentals of Algebra	3

Major Requirements - 43 credits

FSMT	1210	Sanitation and Security in Food Services	1
FSMT	1220	Service Theories and Practices	2
FSMT	2101	Purchasing Systems and Inventory and Storage Control	2
FSMT	2104	Buffet and Catering Services	3
FSMT	2203	Restaurant Management	3
FSMT	2915	Internship in Restaurant Management	3
ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3
ENTR	2200	Fundamentals of Entrepreneurship	3
HMGT	1060	Introduction to Marketing in the Hotel Industry	3
HMGT	3200	Human Resources Management in the Hotel Industry	3
HMGT	3301	Food and Beverage Management I	3
HMGT	3302	Food and Beverage Management II	3
TURI	1020	Fundamentals of Tourism	3
TURI	1040	First Aid	1
TURI	2000	Laws and Tourism	3

Sales (A.A.S.)

The Associate of Applied Science Degree in Sales aims to study the sales systems and their basic functions geared to achieve their objectives, contact clients and develop presentations on sales. The Program helps the student perform efficiently and effectively in the world of work.

The Aguadilla and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN SALES

General Education Requirements		24 credits
Major Requirements		18 credits
Core Course Requirements		10 credits
Elective courses		6 credits
	Total	58

General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6

GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Major Requirements - 18 credits

MKTG	1210	Introduction to Marketing	3
MKTG	2910	Internship	3
MKTG	3230	Itegrated Marketing Communication	3
MKTG	3234	Personal Sales	3
MKTG	3235	Sales Management	3
MKTG	3236	Retail Selling	3

Core Course Requirements - 10 credits

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3
MAEC	2211	Principles of Economics (Micro)	3

Social Work (B.A.)

Courses are offered in administration, theory and practice with the aim of preparing students for beginning generalist practice in the field of social work. The major in this discipline provides not only theoretical knowledge but the opportunity to gain experience through practical instruction in welfare agencies of various types in Puerto Rico.

Students will fill out the Program admission form after having completed course SOWO 2503,with a minimum grade of C. To take the practice courses (SOWO 4911, 4912), students must have successfully completed eighty-two (82) credits with a general grade index and a grade index in the major of at least 2.50.

The laboratory teaching method used in each course makes it necessary to limit course sections to maximum of 25 students.

The Aguadilla, Arecibo, Fajardo and Metropolitan campuses are authorized to offer this Program.

The Program of the Arecibo and Metropolitan campuses is accredited by the Council on Social Work Education, (**http://www.cswe.org**).

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SOCIAL WORK

General Education Requirements		48 credits
Major Requirements		55 credits
Elective Courses		9 credits
	Total	112

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." In addition to taking course GEHS 2010, students of this Program will take courses 3020 and 3040 in the Historic and Social Context category.

Major Requirements - 55 credits

SOWO	2503	Introduction to Social Work	3
SOWO	2514	Social Policies and Services	3
SOWO	3461, 3462	Humans and Their Social Environment I, II	6

SOWO	3504	Introduction to Agency Administration and Supervision	3
SOWO	3801	Communication and Interview Process	3
SOWO	3802	Report Writing	3
SOWO	3828	Social and Community Groups Generalist Social Work	3
SOWO	4873	Social Scientific Research Methodology	4
SOWO	4911, 4912	Practice Experiences in Generalist Social Work I, II	8
SOWO	4931, 4932	Practice Methods in Generalist Social Work I, II	6
SOWO	497_	Seminar	3
BIOL	1006	Fundamentals of Biology	4
PSYC	1051	General Psychology I	3
PSYC	3001	Statistical Methods of Psychology	3

Minor in Gerontology for Social Work

The Arecibo Campus is authorized to offer this Minor.

REQUIREMENTS FOR THE MINOR IN GERONTOLOGY FOR SOCIAL WORK - 18 credits

GERO	2000	Introduction to Gerontology	3
GERO	2010	Neuropsychology for the Elderly Adult	3
GERO	3310	Ethical and Legal Aspects in Gerontology	3
GERO	3311	Loss and Death	2
GERO	3312	Trends and Controversies in Elderly Adult Care	2
GERO	4916	Practicum in Social Gerontology	2
GERO	4970	Seminar in Social Gerontology	3

Sociology (B.A.)

The objective of the Sociology Program is to develop in the student an understanding of the collective behavior of human beings. The courses cover a variety of social groups such as social classes, the family and the community. Human beings are also seen in different contexts: rural society, slums, the suburb, the modern city and the international community. The curriculum also covers behavioral themes such as population growth, migration, the management of organizations, crime and delinquency. The courses are built on an empirical and interpretative foundation designed to familiarize the students with sociological theories and research methods.

The Program offers the Bachelor of Arts Degree in Sociology and is designed to provide a basis for graduate studies in sociology and anthropology and to prepare its students to work professionally with groups and individuals.

The Metropolitan and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SOCIOLOGY

General Education Requirements		48 credits
Core Course Requirements		37 credits
Major Requirements		18 credits
Elective Courses		9 credits
	Total	112

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." In the Historical and Social Context category the students of this Program will take GEHS 2020 Global Vision of Economy and GEHS 4030 Modern and Contemporary Western Civilization.

Core Course Requirements - 37 credits

SOCI	1030	Introduction to Sociology	3
SOCI	2020	Structures, Continuity and Change	3
SOCI	3753	Social Problems of Puerto Rico	3
SOCI	3900	History of Social Thought	3
SOCI	4050	Sociological Theories	3
SOCI	4800	Sociological Research	4
SOCI	497 -	Seminar	3
ANTH	1040	Introduction to Anthropology	3
ANTH	2040	Culture and Environment	3
PSYC	1051	General Psychology I	3
PSYC	3001	Statistical Methods I	3
POLS	1011	Introduction to Political Science	3

Major Requirements - 18 credits

At least one of the following majors is required:

● GENERAL SOCIOLOGY

Students will take 6 courses from the following:

SOCI	2040	Family and Society	3
SOCI	2050	Urban Society and its Transformation	3
SOCI	2070	Civil Society and Self-Management	3
SOCI	3010	Diversity and Marginality	3
SOCI	3645	Demography	3
SOCI	4600	Human Rights and Society	3
ANTH	2060	Language and Culture	3
ANTH/SOCI		Course at level 4000	3

● GENERAL ANTHROPOLOGY

Students will 6 courses from the following:

ANTH	2060	Language and Culture	3
ANTH	3010	Ethnography and Ethnology	3
ANTH	3020	Anthropology and Religion	3
ANTH	3050	Studies of Popular Culture	3
ANTH	3500	Archeology	3
ANTH	3600	Physical Anthropology and Human Evolution	3
ANTH	4020	Health Anthropology	3
ANTH	4700	Caribbean Cultures	3

• CRIMINAL JUSTICE

Students will take 6 courses from the following:

SOCI	2040	Family and Society	3
SOCI	2060	Violence and Criminal Conduct	3
SOCI	2080	Criminal Justice System in Puerto Rico	3
SOCI	3010	Diversity and Marginality	3
SOCI	3560	Rehabilitation Systems for Delinquents	3
SOCI	4060	Criminology and Delinquency	3

SOCI	4600	Human Rights and Society	3
SOCI	4910	Internship	3

Minor in Archeology

The minor in Archeology exposes students to the techniques, the methods and the practices of archeology from a scientific perspective. They will learn excavation techniques, as well as the suitable handling of the tools used in the identification, the preservation and the conservation of the archaeological deposits and the artifacts found in these. They will comply with the protection and conservation norms of the cultural and historical patrimony and will demonstrate an ethical conduct in harmony in compliance with the national and international laws governing this profession.

The Metropolitan Campus is authorized to offer this minor.

Requirements for the Minor in Archeology - 22 credits

ACHA	3501	Archaeological Materials I	3
ACHA	3502	Archaeological Materials II	3
ACHA	4000	Cultural Resources Management and Public Archeology	3
ACHA	4010	Field Archeology	4
ANTH	1040	Introduction to Anthropology	3
ANTH	3500	Archeology	3
ANTH	3600	Physical Anthropology and Human Evolution	3

Minor in Communitarian Social Development

The Metropolitan Campus is authorized to offer this minor.

Requirements for the Minor in Communitarian Social Development - 18 credits

SOCI	1030	Introduction to Sociology	3
SOCI	2070	Civil Society and Self-Management	3
SOCI	3010	Diversity and Marginality	3
SOCI	3070	Community and Socioeconomic Development	3
SOCI	3570	Nonprofit Organizations	3
SOCI	4870	Management of Communitarian Projects	3

Spanish (B.A.)

The curriculum in Spanish is designed to develop student skills in the oral and written language as well as to provide general knowledge of the Spanish, Spanish-American, and Puerto Rican literature in the historical and philological context of the Spanish language. The mastery and fluency in handling the vernacular language is an unavoidable commitment for the Spanish program and humanistic training program and for the Institution itself.

With the academic preparation provided, the Program graduates will be able to compete in the work force in different types of jobs that require fluidity and good handling of the Spanish language. It also prepares them to continue graduate studies.

A Bachelor of Arts Degree in Spanish is offered. The Institution offers three related minors.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SPANISH

General Education Requirements	48 credits
Major Requirements	39 credits
Prescribed Distributive Requirements	15 to 17 credits
Elective Courses	12 credits
Total	114 to 116

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees."

Major Requirements - 39 credits

SPAN	2510	Introduction to Text Analysis	3
SPAN	2541	Advanced Grammar I	3
SPAN	2542	Advanced Grammar II	3
SPAN	3011	Spanish Linguistics I	3
SPAN	3012	Spanish Linguistics II	3
SPAN	3020	Writing Workshop	3
SPAN	3021	Spanish Literature I	3
SPAN	3022	Spanish Literature II	3
SPAN	3071	Spanish-American Literature I	3
SPAN	3072	Spanish-American Literature II	3
SPAN	3211	Puerto Rican Literature I	3
SPAN	3212	Puerto Rican Literature II	3
SPAN	4196	The Language of Puerto Rico	3

Prescribed Distributive Requirements - 15 to 17 credits

Three courses in Literature and/or Linguistics at the 4000 level	9
Six to eight credits of another language (French, Italian, Latin or Portuguese)	6-8

Minor in Bilingual Oral and Written Communication

The Metropolitan Campus is authorized to offer this minor.

Minor in Bilingual Oral and Written Communication - 21 credits

Core Course Requirements - 18 credits

ENGL	3007	Advanced Composition	3
ENGL	3025	Professional Writing	3
ENGL	3310	Advanced Oral Communication	3
SPAN	3015	Oral Communication	3
SPAN	3020	Writing Workshop	3
SPAN	3025	Writing of Professional Document	3

Prescribed Distributive Requirements - 3 credits

ENGL	4015	Translation Workshop	
		or	
SPAN	4015	Translation Workshop	3

Minor in Oral and Written Communication (Spanish)

The Metropolitan Campus is authorized to offer this minor.

Minor in Oral and Written Communication - 18 credits

Core Courses - 18 credits

SPAN	2541	Advanced Grammar I	3
SPAN	2542	Advanced Grammar II	3
SPAN	3015	Oral Communication	3
SPAN	3020	Writing Workshop	3
SPAN	3025	Writing of Professional Documents	3
SPAN	4196	The Language of Puerto Rico	3

Minor in Spanish

The Metropolitan Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN SPANISH - 18 credits

SPAN	2510	Introduction to Text Analysis	3
SPAN	2541	Advanced Grammar I	3
SPAN	2542	Advanced Grammar II	3
		A course in Linguistics	3
		Six (6) credits in Literature	6

Minor in Strategic Languages

The minor in strategic languages offers the opportunity for students to be exposed to other languages which will prepare them for a better professional performance in the globalized world of today. Upon acquiring the linguistic competencies, student will acquire a greater awareness of the culture of the speakers, as well as becoming better qualified to coexist in a world that is more diverse every day.

The Minor in Strategic Languages will consist of a minimum of eighteen (18) credits. A minimum grade point average of 3.00 in the minor is required for certification.

The Metropolitan Campus is authorized to offer this minor.

REQUIREMENTS FOR THE MINOR IN STRATEGIC LANGUAGES - 18 Credits

Students will select 18 credits from the following courses:

ARAB	1001	Basic Arabic I	4
ARAB	1002	Basic Arabic II	4
ARAB	2201	Intermediate Arabic I	3
ARAB	2202	Intermediate Arabic II	3
FREN	1001	Basic French I	4
FREN	1002	Basic French II	4
FREN	2021	Intermediate French I	3
FREN	2022	Intermediate French II	3
ITAL	1001	Italian Basic I	4
ITAL	1002	Basic Italian II	4
ITAL	2021	Italian Interval I	3

ITAL	2022	Italian Interval II	3
MAND	1001	Basic Mandarin I	4
MAND	1002	Basic Mandarin II	4
MAND	2021	Mandarin Interval I	3
MAND	2022	Intermediate Mandarin II	3
PORT	1001	Basic Portuguese I	4
PORT	1002	Basic Portuguese II	4
PORT	2021	Intermediate Portuguese I	3
PORT	2022	Intermediate Portuguese II	3
RUSS	1001	Basic Russian I	4
RUSS	1002	Basic Russian II	4

Speech and Language Therapy (B.S.)

The Bachelor of Science Program in Speech and Language Therapy aims to prepare competent professionals who can collaborate in taking care of the needs of children and young people of Puerto Rico with communication disorders. The professional graduates of the Program will be able to offer therapeutic services to children and young people between 0-21 years of age under the supervision of a licensed Speech and Language Pathologist, as established by Law 77 which regulates the practice of professionals of Speech and Language Therapy, Speech Pathology, and Language and Audiology in Puerto Rico. Graduates of this Program will be capable of performing tasks of evaluation and prevention of communication disorders.

In addition to the admission requirements in this Catalog, students of this Program must present evidence of graduation from an accredited high school or its equivalent with a minimum grade point index of 2.50 or its equivalent.

The Fajardo and Ponce campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN SPEECH AND LANGUAGE THERAPY

General Education Requirements		48 credits
Major Requirements		64 credits
Prescribed Distributive Requirements		9 credits
	Total	121

General Education Requirements - 48 credits

Forty and eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees". Students of this Program will take course GEST 2020-Science, Technology and Environment in the Scientific and Technological Context category and course GEHS 3030- Human Formation in Contemporary Society in the Historical and Social Context category. They will take course GEMA 1200 in the Basic Skills in Mathematics category.

Major Requirements - 64 credits

Students will take sixty and four (64) credits from the following courses

SPTH	2020	Anatomy y Physiology of Speech and Language	3
SPTH	2021	Normal Development of Language	3
SPTH	2022	Introduction to Audiology	3
SPTH	2023	Clinical and Administrative Procedures in the Speech and Language Therapy Profession	3
SPTH	2024	Use of Technology in the Practice of Speech and Language Therapy	3

SPTH	3000	Development of Speech: Normal and Pathological Processes	3
SPTH	3010	Fluency Disorders in Children	3
SPTH	3015	Voice Disorders in Children	3
SPTH	3020	Identification and Treatment of Children with Oral Language Disorders	3
SPTH	3021	Identification and Treatment of Children with Written Language Disorders	3
SPTH	3110	Cleft Palate and Craniofacial Anomalies	3
SPTH	3120	Intervention with Children with Hearing Impairments	3
SPTH	3130	Psycho-social and Cognitive Conditions Associated with Speech and Language Problems	3
SPTH	3140	Early Intervention	3
SPTH	4110	Augmentative and Alternate Aid for Communication in Children	3
SPTH	4120	Sign Language	3
SPTH	4130	Treatment of Children with Severe Conditions	3
SPTH	4135	Dysphagia in Children	3
SPTH	4140	Contemporary Topics in Speech and Language Therapy	3
SPTH	4912	Clinical Practicum I	3
SPTH	4913	Clinical Practicum II	4

Prescribed Distributive Requirements - 9 credits

Select nine (9) credits from the following courses:

EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2870	The Exceptional Student Population	4
EDUC	2905	Nature and Needs of the Students with Mental Retardation and Emotional Disturbances	3
EDUC	2906	Nature and Needs of Students with Specific Learning Problems and ADHD	3
EDUC	3290	Classroom Management	3

Tourism (A.S. and B.B.A.)

Associate Program

The Associate of Science Degree in Tourism with majors in Tourist Guide and Tourist Administrative Assistant studies principles, concepts and practice of the tourism industry and related areas. This degree is designed for individuals capable of communicating in English and Spanish and who wish to pursue a career in the tourism industry as well as for those with experience in this field who aspire to positions at a supervisory level.

Tourist Guide majors will develop skills in the following areas: tourism planning and development, excursion promotion and sales, and others. In order to practice the profession in Puerto Rico, students must pass a validation examination to obtain a Tourist Guide license from the Puerto Rico Tourism Company. Tourist Administrative Assistants will perform in the following areas: reception, reservations, human resources, accounting and management in diverse hotels and related industries, depending on their experience.

Requirements for Admission to the Internship

In order to be admitted to the Tourist Guide Internship or to the Tourist Administrative Assistant Internship, students must have a minimum grade point average of 2.50 in the core courses and major courses and must have authorization from the Department Director.

Graduation Requirements:

In addition to the regulations established in the General Catalog, students should have a minimum grade point average of 2.5 in the major.

The Fajardo Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF SCIENCE DEGREE IN TOURISM WITH MAJORS IN TOURIST GUIDE AND IN TOURIST ADMINISTRATIVE ASSISTANT

General Education Requirements		24 credits
Core Course Requirements		27 credits
Major Requirements		15 credits
	Total	66

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

Core Course Requirements - 27 credits

TURI	1020	Fundamentals of Tourism	3
TURI	1030	Travel Agencies and Computerized Reservation Systems	2
TURI	1040	First Aid	1
TURI	2000	The Law and Tourism	3
TURI	2010	The Reception Department	2
TURI	2030	Intercultural Communication	3
TURI	2060	Tourist Marketing	3
BADM	1900	Fundamentals of Management	3
ACCT	1161	Introduction to Financial Accounting	4
ENGL	2054	Speech Workshop	
		or	
SPAN	2451	Spanish as a Foreign Language	3

Major Requirements - 15 credits

One of the following majors is required:

Tourist Guide (A.S.)

Tourist Guide - 15 credits

TURI	1050	The Tourist Guide	3
TURI	2020	Geography and Tourism in Puerto Rico	3
TURI	2040	Planning and Developing Excursions	3
TURI	2050	Geography and World Tourism	3
TURI	2913	Internship in Tourism Guide	3

Administrative Tourist Assistant (A.S.)

Administrative Tourist Assistant - 15 credits

TURI	2400	Room Division Management	3
TURI	2600	Building and Land Management	3

TURI	2910	Tourist Administrative Assistant Internship	3
TURI	3200	Human Resources Management in the Hotel Industry	3
TURI	3300	Food and Beverage Management	3

Bachelor's Program

The Bachelor of Business Administration Degree with a a major in Tourism Management will develop professionals capable of administering, developing and serving in tourist destinations, such as, zones, areas, towns and communities in tourist areas and their dependencies.

This program enables students to apply the concepts, principles and techniques required for the effective administration of tourism businesses. The specialization in tourism administration is for those students who wish to develop professionally in tourism areas, such as; government, private companies, their own businesses and tourist facilities like hotels, restaurants and others. They will be able to work in areas of consulting, planning and zoning of tourism areas, as well as in the hospitality industry, trips and excursions.

Students must pass the required core and major courses with a minimum grade of C.

The Fajardo Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE WITH A MAJOR IN TOURISM MANAGEMENT

General Education Requirements		48 credits
Core Course Requirements		38 credits
Major Requirements		36 credits
Elective Courses		6 credits
	Total	125

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students in this Program will take GEMA 1200 in the Basic Mathematical Skills category.

Core Course Requirements - 38 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Businesses	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	Foundations of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
OMSY	3030	Business Communication Workshop in Spanish	3
		or	
OMSY	3040	Business Communication Workshop in English	3

Tourism Management (B.B.A.)

Requirements for the Major in Tourism Management - 36 credits

TURI	1020	Fundamentals of Tourism	3
TURI	1200	Tourist Quality and Services	3

TURI	1900	Hotel Management	3
TURI	2000	Laws and Tourism	3
TURI	2060	Tourist Marketing	3
TURI	2200	Culture and Tourist Destinations of Puerto Rico	3
TURI	3010	Ecotourism and Sustainable Tourism	3
TURI	3210	Planning and Tourist Development	3
TURI	3220	Trip Reservations Systems	3
TURI	3230	Accommodations Department Administration	3
TURI	4400	Administration and Organization of Groups and Conventions	3
TURI	4910	Internship in Tourism Administration	3

Credit may be granted for the internship (TURI 4910) to students who have had a satisfactory work experience and who apply for it in writing to the director of the academic department. This credit will be subject to the following:

1. Students have been working full-time in a company for a minimum of two consecutive years within the three-year period immediately prior to the date of their request.
2. Students submit a certification and letter from their employer or the Human Resources Office of their place of employment which specifies:
   a. Years of experience
   b. Period of the time employed
   c. Position or positions held
   d. Job description
   e. Copies of evaluations received
   f. Any other evidence of their professional performance during their employment.
3. Students pay 50% of the tuition costs of the internship course for which they are requesting credit.

The experience recognized by the University corresponds to the requirement for the degree that the student hopes to obtain from the Institution.

Training and Sports Management (B.A.)

The Bachelor of Arts program in Training and Sports Management aims to train professionals to administer, market and develop sports training programs. It provides the tools to successfully establish and administer a sports business. Likewise, it prepares those interested in the development of training programs with scientific base. This multidisciplinary program integrates the areas of Physical Education, Business Administration and Marketing.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN TRAINING AND SPORTS MANAGEMENT

General Education Requirements		48 credits
Major Requirements		57 credits
Elective Courses		6 credits
	Total	111

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees.

Major Requirements - 57 credits

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3

BADM	3300	Communication in Management	3
BADM	3330	Human Resource Management	3
BADM	3490	Supervision	3
BADM	4340	Protective Labor Legislation	3
ENTR	2200	Fundamentals of Entrepreneurship	3
HPER	2320	First Aid and Personal Safety for Children, Youth and Adults	2
HPER	3040	Legal Foundations in Sports	3
HPER	3270	Anatomy and Kinesiology	3
HPER	3480	Nutrition for Sports Training	3
HPER	4170	Physiology of Human Movement	3
HPER	4301	Sports Training Methodology I	3
HPER	4302	Sports Training Methodology II	3
HPER	4308	Design of Exercise Programs	3
HPER	4444	Clinical Experiences in Training	3
SRIM	1020	Foundations of Sports and Recreation	3
SRIM	2300	Introduction to Sports Marketing	3
SRIM	3030	Development of Programming of Sport and Recreational Centers	3

Course Descriptions

Courses in Accounting (ACCT)

ACCT 1161 INTRODUCTION TO FINANCIAL ACCOUNTING
Introduction to accounting and its relation with the business environment. Study and application of the accounting system in services and retail companies. Financial statement presentation and its utility in decision making. Discussion of general aspects related to: internal control, assets, liabilities and capital structures. The use of technology is integrated.

4 credits

ACCT 1162 INTRODUCTION TO MANAGERIAL ACCOUNTING
Introduction to the fundamentals of managerial accounting as part of the planning, decision making and cost control processes in a company. Construction of budgets and their use in the decision making process. The use of technology is integrated. Prerequisite: ACCT 1161.

4 credits

ACCT 2010 ELECTRONIC WORKSHEETS IN ACCOUNTING
Practice and development at an intermediate and advanced level of the electronic worksheet that includes its three integral parts: spreadsheet, data management and graphs. Prerequisites: GEIC 1010, ACCT 1161.

3 credits

ACCT 2025 ANALYSIS OF FINANCIAL STATEMENTS
Organization and presentation of business and personal financial statements. Application of the different computerized methods, techniques and programs used to analyze and compare financial statements. Includes the analysis and interpretation of financial ratios. The use of technology is integrated. Prerequisite: ACCT 1161.

3 credits

ACCT 2041 PUERTO RICO TAX SYSTEM FOR INDIVIDUALS
Discussion of the dispositions of the Internal Revenue Code of Puerto Rico and the amendments related to individuals taxes including the preparation of the required forms. Study of the tax obligations imposed by state and federal laws to Puerto Rican employers and the legal responsibility of tax specialists. The use of technology is integrated. Prerequisite: ACCT 1161.

4 credits

ACCT 2042 TAX SYSTEM OF PUERTO RICO FOR CORPORATIONS, PARTNERSHIPS AND OTHER ENTITIES
Discussion and application of the dispositions of the Internal Revenue Code of Puerto Rico and its amendments related to income taxes applicable to corporations, partnerships and other entities. Includes the study of excise taxes and municipal and property patents. The use of technology is integrated. Prerequisite: ACCT 2041.

3 credits

ACCT 2055 COST ACCOUNTING I
Application and analysis of cost accumulation using the job, procedural cost and activity based cost methods in order to plan, implement and control the operations of the company. The concepts of budget and standard cost will be included. The use of technology is integrated. Prerequisite: ACCT 1162.

4 credits

ACCT 2056 COST ACCOUNTING II
Analysis, application and interpretation of cost information as the base for decision making. Includes the cost-volume-benefit relation, management control systems and investment decision. The use of technology is integrated. Prerequisite: ACCT 2055.

3 credits

ACCT 2061 INTERMEDIATE ACCOUNTING I
Discussion, analysis, interpretation and application of the accounting conceptual framework. Study and practice of the accounting cycle and the acquisition, classification, valuation and disposition of assets. The use of technology is integrated. Prerequisite: ACCT 1161.

4 credits

ACCT 2062 INTERMEDIATE ACCOUNTING II
Discussion, analysis, interpretation and application of the theoretical and practical aspects of accounting for short and long term liabilities, income taxes, rent contracts, pensions, income recognition and corporate capital. The use of technology is integrated. Prerequisite: ACCT 2061.

4 credits

ACCT 2070 INTERNATIONAL ACCOUNTING
Application of the theories, norms and practices of international accounting. Includes the global accounting perspective, accounting systems for multinational companies, criteria and practices in the elaboration and presentation of financial information, financial analysis and exchange prices, among others. Prerequisite: ACCT 2062.

3 credits

ACCT 2085 FEDERAL TAXES FOR INDIVIDUALS
Discussion of the dispositions of the Federal Internal Revenue Code related to individual income taxes, including the preparation of required forms. Discussion of the special dispositions applicable to the residents of Puerto Rico. The use of technology is integrated. Prerequisite: ACCT 1161.

3 credits

ACCT 3010 ACCOUNTING FOR COOPERATIVES
Discussion of the philosophical aspects, structure, normative policy and statutory requirements. Emphasis on the study and application of administrative and accounting internal controls, and the accounting principles related to savings and credit cooperatives, consumption and others. Prerequisite: ACCT 2062.

3 credits

ACCT 3030 COMPUTERIZED SYSTEMS APPLIED TO ACCOUNTING
Application of the programs used in the processes of gathering, analyzing, interpreting, synthesizing and presenting accounting information. Prerequisites: GEIC 1010, ACCT 2062.

3 credits

ACCT 3063 INTERMEDIATE ACCOUNTING III
Discussion, analysis, interpretation and application of theoretical and practical aspects of accounting related to: earnings per share, long term investments, foreign currency exchange and changes in estimates and accounting principles. Includes the preparation of complex financial statements and current topics. The use of the technology is integrated. Prerequisite: ACCT 2062.

4 credits

ACCT 3086 FEDERAL TAXES FOR CORPORATIONS, PARTERSHIPS AND OTHER ENTITIES
Discussion and application of the dispositions of the Federal Internal Revenue Code related to income taxes applicable to corporations, partnerships and other entities, including the preparation of the required forms. The use of technology is integrated. Prerequisite: ACCT 2085.

3 credits

ACCT 3095 BUSINESS ETHICS
Review of the ethical aspects needed in the businesses world. Analysis of outstanding publications of Puerto Rican authors and authors from other countries on this subject. Analysis and application of cases. The codes of ethics of different professionals will be identified and will be compared with the Code of Ethics for Accountants from the United States and other countries.

3 credits

ACCT 3460 ACCOUNTING FOR NON PROFIT ORGANIZATIONS
Discussion and practice of accounting for non profit organizations such as: government, hospitals, universities and other public and private entities. Includes the accounting for trusts and estates. The use of technology is integrated. Prerequisite: ACCT 2062.

3 credits

ACCT 3470 ADVANCED ACCOUNTING
Discussion and practice of the Equity Method for long term investments and of topics related to business mergers and consolidations. Includes accounting for partnerships and reorganization and liquidation of corporations. The use of technology is integrated. Prerequisite: ACCT 3063.

3 credits

ACCT 4010 AUDITING AND ETHICS FOR ACCOUNTANTS
Analysis and interpretation of the theory, norms, auditing process and the types of audit reports. Includes planning, internal control evaluation, the accounting system and the preparation of the auditor worksheets. In addition, the ethical principles of the accounting profession and the legal responsibility of accountant are examined. The use of technology is integrated. Prerequisite: ACCT 3063.

4 credits

ACCT 4015 FORENSIC ACCOUNTING
Analysis of the functions of the forensic accountant in investigations and audits. Study of the legal environment, solution of disputes, litigation services, fraud in financial statements and tax fraud. Prerequisite: ACCT 3063.

3 credits

ACCT 4350 ACCOUNTING INFORMATION SYSTEMS AUDITING
Design and evaluation of administrative controls aimed to safeguard business resources and maintain the integrity and reliability of information. Includes controls related to management, equipment, programming, input and output of information, data processing, and audit techniques.

3 credits

ACCT 4912 ACCOUNTING INTERNSHIP
Accounting practice in an organization or company under the supervision of a professor. Requires a minimum of 100 hours of practice. Prerequisite: Have passed a minimum of 30 credits in Accounting.

3 credits

ACCT 4915 BUSINESS LAW FOR CPA CANDIDATES
Areas of law examined in the Uniform Test for Certified Public Accountants, Contract laws in the United States, Uniform Business Law, special laws regulating business and legal work and responsibility of Certified Public Accountants. Prerequisites: ACCT 3460, 4010.

3 credits

ACCT 4975 FEDERAL REGULATIONS
Discussion and application of the commercial and tax law in the United States of America. Includes the professional and legal responsibility of the Certified Public Accountant. The CPA examination approach is used. Prerequisites: ACCT 3460, 3470, 3086, 4010.

3 credits

ACCT 4976 FINANCIAL ACCOUNTING AND REPORTS SEMINAR
Synthesis of the subjects studied in the financial, cost, advanced, and nonprofit organization accounting courses. The CPA examination approach is used. Prerequisites: ACCT 3460, 3470, 3086, 4010.

3 credits

ACCT 4977 AUDIT AND SPECIALIZED SERVICES SEMINAR
Synthesis of the audit procedures and the Generally Accepted Accounting Standards of the United States of America. Includes other standards for different attestation services offered by Certified Public Accountants. The CPA examination approach is used. Prerequisites: ACCT 3460, 3470, 3086, 4010.

3 credits

ACCT 4978 BUSINESS ENVIRONMENT AND CONCEPTS SEMINAR
Synthesis of the "Business Environment and Concepts" and its relation with transaction analysis for accounting purposes, audit and other services that Certified Public Accountants offer. The CPA examination approach is used. Prerequisites: ACCT 3460, 3470, 3086, 4010.

3 credits

Courses in Airway Science (AWSC)

AWSC 2000 INTRODUCTION TO AERONAUTICS AND SPACE
Basic knowledge of aviation. Includes the historical development and the contemporary trends of the aviation industry, as well as an introductory perspective to the aerospace industry.

3 credits

AWSC 2115 PRIVATE PILOT
Study of the principles of flight and the development of the skills required for the for Private Pilot Certification Examination of the Federal Aviation Administration. Requires a minimum of 40 hours of flight. It may require additional time in individualized theory or flight training depending on the mastery of the skills required for obtaining the certificate. The certification requirements are disseminated by the Federal Aviation Administration (FAA) and may change at the discretion of the agency. Prerequisites: AWSC 2000, a First Class Medical certificate issued by an Authorized Medical Examiner accepted by the Federal Aviation Administration (FAR Part 67) and an interview with the Chief Instructor.

5 credits

AWSC 2200 GOVERNMENT & REGULATIONS IN AVIATION
Study of agreements, conferences, reports, conventions, minutes and other related congressional laws related to the development and promotion of aviation in the United States and at the international level. Emphasis on the analysis of the principles of laws, statutes and agreements governing air transportation. Prerequisite: AWSC 2000.

3 credits

AWSC 2300 AIRLINE PASSENGER SERVICES
Study of the services provided to passengers at airports and airlines reservations departments. Includes computerized airline reservation systems. Prerequisite: AWSC 2000.

3 credits

AWSC 3000 AERONAUTICAL LANGUAGE SKILLS
Develop of the skills required to communicate effectively within the aviation environment on land and in the air. Emphasis is placed on the terminology and phraseology. Prerequisite: AWSC 2000.

3 credits

AWSC 3150 INSTRUMENT RATING
Develop the fundamental skills required for the Flight by Instrument Rating of the Federal Aviation Administration. Includes the use of flight instruments and regulations applicable to instrument flight and approach procedures, among others. Requires a minimum of 40 hours of flight and 50 hours of cross-country flight. It may require additional time in individualized theory or flight training depending on the mastery of the skills required for obtaining the certificate. The certification requirements are disseminated by the Federal Aviation Administration (FAA) and may change at the discretion of the agency. Prerequisites: AWSC 2115 and Private Pilot Certificate.

4 credits

AWSC 3160 COMMERCIAL PILOT
Development of fundamental skills for commercial pilot certification by the Federal Aviation Administration. Requires a cumulative minimum of 250 hours of flight. It may require additional time in individualized theory or flight training depending on the mastery of the skills required for obtaining the certificate. The certification requirements are disseminated by the Federal Aviation Administration (FAA) and may change at the discretion of the agency. Prerequisites: AWSC 3150 and Private Pilot Certificate with Instruments Rating.

3 credits

AWSC 3411 PRINCIPLES OF AIR TRAFFIC CONTROL
Study of the basic foundations of air traffic control. Includes navigation, meteorology and Federal Air Regulations. Prerequisite: AWSC 2000.

3 credits

AWSC 3600 FLIGHT SAFETY AND SECURITY
Study of the Safety Management System (SMS) components. Emphasis on the analysis of air accidents. Analysis of the measures and security laws required at airports and airlines to counteract threats and other risks in air transportation. Prerequisite: AWSC 2000.

3 credits

AWSC 4000 AIRPORT DEVELOPMENT AND OPERATIONS
Analysis of the development of public airports, the importance of the master plan, management problems and the process of airport certification. Prerequisite: AWSC 3600.

3 credits

AWSC 4055 MANAGEMENT OF AIR CARGO
Analysis of the importance of air cargo services in national and international economy. Study of the management aspects related to this area: history, competition, tariffs, cargo facilities and equipment and future development of the industry. Prerequisite: AWSC 3600.

3 credits

AWSC 4100 CAREER DEVELOPMENT FOR AEROSPACE PROFESSIONALS
Study of professional standards, ethics, professional development and the certifications required in the aerospace industry. Emphasis on preparing the student for the transition to a career in aviation. Includes the development of skills for job placement in the industry, as well as the importance of professional organizations for professional development. It considers the expectations, goals and metrics used in the environment of each specialization. Prerequisite: AWSC 3600.

1 credit

AWSC 4204 AIRLINE OPERATIONS
Thorough study of the Federal Regulations of air transportation for airlines and commercial operators. Includes the functions and relations among the various major divisions of a typical airline. Prerequisite: AWSC 3160.

3 credits

AWSC 4305 AVIATION METEOROLOGY
Analysis of air masses and frontal systems, principles of atmospheric stability, and severe climatologic phenomena. Prerequisite: AWSC 2000.

3 credits

AWSC 4310 HUMAN FACTORS FOR PILOTS
Analysis of the relationship between human beings and flight environment. Includes human behavior and performance, perception, memory, learning, and ergonomics. Discussion of the implications of decision-making in risk management. Review of physiology and the relevant regulations according to medical certification standards for pilots. Aircraft

technology, automation and human interaction with machine are illustrated. Prerequisite: AWSC 3160 and Commercial Pilot Single & Multi Engine Certificate.

3 credits

AWSC 4320 ADVANCED AIRCRAFT SYSTEMS
Analysis of the principles of aircraft systems operation. Prerequisite: AWSC 3160, PHYS 3001 and Commercial Pilot Single & Multi Engine Certificate.

3 credits

AWSC 4340 APPLIED AERODYNAMICS
Analysis of the principles of subsonic, transonic and supersonic aerodynamics. Prerequisite: AWSC 3160, PHYS 3001 and Commercial Pilot Single & Multi Engine Certificate.

3 credits

AWSC 4360 FLIGHT INSTRUCTOR
Development of the fundamentals of flight instruction. Application of methods of teaching and learning flight maneuvers and evaluation of certification of flight instructor (airplane), flight instructor instrument instructor and multimotor flight instructor. Requires a mínimum of 12 hours in a single-engine airplane and 3 hours in a complex aircraft in addition to 45 hours of individualized theory with an instructor as preparation for taking the practical exam for flight instructor. It may require additional time in individualized theory or flight training depending on the mastery of the skills required for obtaining the certificate. The certification requirements are disseminated by the Federal Aviation Administration (FAA) and may change at the discretion of the agency. Prerequisites: AWSC 3160 and Commercial Pilot Single & Multi Engine Certificate.

3 credits

AWSC 4364 FLIGHT INSTRUCTOR-INSTRUMENTS
Instruction, flight training and practice teaching that will allow the student to obtain the aeronautical skills and knowledge necessary to meet the requirements for a Flight Instructor Certificate with an Instrument Airplane Rating. Requires 10 hours in a single-engine airplane and five hours with instruments in addition to 45 hours of individualized theory with an instructor as preparation for taking the practical exam for flight instructor. It may require additional time in individualized theory or flight training depending on the mastery of the skills required for obtaining the certificate. The certification requirements are disseminated by the Federal Aviation Administration (FAA) and may change at the discretion of the agency. Prerequisites: AWSC 4360, Flight Instructor Certificate and Commercial Pilot Single & Multi Engine Certificate.

1 credit

AWSC 4373 MULTI-ENGINE INSTRUCTOR
Instruction, flight training and practice teaching that will allow the student to obtain the aeronautical skills and knowledge necessary to meet the requirements for a Flight Instructor Certificate with an Airplane Multiengine Rating. Requires 15 hours of flight with an instructor in a multiengine airplane and 30 hours of theory as preparation for the practical test of Multiengine Flight Instructor. It may require additional time in individualized theory or flight training depending on the mastery of the skills required for obtaining the certificate. The certification requirements are disseminated by the Federal Aviation Administration (FAA) and may change at the discretion of the agency. Prerequisites: AWSC 4360, Commercial Pilot Single & Multi Engine Certificate and Flight Instructor Certificate.

1 credit

AWSC 4384 TRAINING TECHNIQUES FOR FLIGHT CREW (CRM TRAINING)
Study of the means and systems available to mitigate human factor errors, such as the flight crew supervision (CRM), standardization and flight procedures. Requires 15 hours in a Flight Training Device (FTD). It may require additional time in an individualized theory or flight training device depending on the mastery of the skills required. Prerequisites: AWSC 3160 and Commercial Pilot Single & Multi Engine Certificate.

2 credits

AWSC 4400 THEORY OF TRANSPORT AIRCRAFT
Analysis of the specific systems of transport aircraft, limitations and normal and emergency procedures for aircraft used in this category. Prerequisites: AWSC 4320.

3 credits

AWSC 4515 AIR TRAFFIC CONTROL I: TOWER OPERATION
Development of radio communication and basic phraseology skills. Application of air traffic control rules, the duties of control tower operators, and airplane identification. Prerequisites: AWSC 3411 and have been admitted to the CTI program.

4 credits

AWSC 4516 AIR TRAFFIC CONTROL II: RADAR OPERATION
Development of radio communication and intermediate phraseology skills. Application of air traffic control rules, the procedures in operating radar, and the use of air navigation charts and other aeronautical publications. Prerequisite: AWSC 4515.

4 credits

AWSC 4517 AIR TRAFFIC CONTROL III: EN-ROUTE AND IN TERMINALS
Development of the radio communication and advanced phraseology skills. Application of advanced air traffic control rules and the duties of controllers. Prerequisite: AWSC 4516.

4 credits

AWSC 4600 AIRLINE MANAGEMENT
Analysis of management principles of the aviation industry. Includes planning, organization, leadership and controls used by airline management. Discussion of the airline organizational structures, functions and departments. Prerequisites: AWSC 3600 and BADM 4800.

3 credits

AWSC 4650 FUNDAMENTALS OF AIRLINE FINANCE
Introduction of the theoretical foundations of airline finances. Analysis of the financial statements that characterize these companies. Use of practical financial applications in matters of risk management and evaluation. Prerequisites: AWSC 4600 and FINA 2100.

3 credits

AWSC 4660 FIXED BASED OPERATORS MANAGEMENT
Application of the skills involved in the implementation of the successful operation of a general aviation business (FBO). Analysis of the evolution and importance of these businesses in the economy. Prerequisite: AWSC 4600.

3 credits

AWSC 4670 INTERNATIONAL COMMERCE AND AVIATION
Analysis of the characteristics, functions and structures of the international transport trade and aviation companies. Development of critical analysis in the areas related to aviation and commerce. Review and assessment of information on problematic areas essential to the development and maintenance of business aviation and international trade. Prerequisite: AWSC 4600.

3 credits

AWSC 4680 AVIATION STRATEGIC MANAGEMENT
Integration and application of administrative theories, experiences and knowledge acquired for the effective strategic management of an airline. Analysis of cases and management situations to be used for the application of strategic management principles and for the solution of organizational problems. Prerequisite: AWSC 4600.

3 credits

AWSC 4913 PRACTICUM IN AIR AGENCIES OPERATIONS
Integration of the knowledge and skills acquired through experience in any work area in an airline, airport operation or general aviation business (FBO) supervised by a university professor. Requires 140 hours of practice. Prerequisite: must be graduation candidates.

3 credits

Courses in Anthropology (ANTH)

The anthropology courses are an integral part of the major in sociology. The study of anthropology contributes to the intellectual formation of social sciences students, and integrates a holistic and comparative vision of the cultural task of the human being as a social being. Anthropology exposes the student to the range of cultural diversity, in time and space, thanks to its evolutionary approach that permits an appreciation of the development and acquisition processes of culture, as an adaptation mechanism of the human species. The origin and development of communities, the organization of primitive societies, traditional societies, the construction of cities; and human the social behavior in complex societies are studied. Anthropology analyzes the culture concept carefully, as a product of social organization, giving emphasis on the social structure and its chief manifestations, such as: the family, community, linguistics, religion and the arts. This is done by using a variety of scientific methods, especially ethnographic studies.

ANTH 1040 INTRODUCTION TO ANTHROPOLOGY
Explanation of the origin and the biological and cultural evolution of humanity. Emphasis in anthropological sciences and their distinctive branches.

3 credits

ANTH 2030 SOCIAL ANTHROPOLOGY
Description of the processes of acquisition of culture and language by the individual and his participation in structural terms in the five basic institutions that compose any socio-cultural system: economical, political, kinship, educational and religious.

3 credits

ANTH 2040 CULTURE AND ENVIRONMENT
Description and analysis of the relationship between the cultural characteristics and the conditions of the habitat. Emphasis on the relations of production, the use of power and environmental diversity.

3 credits

ANTH 2060 LANGUAGE AND CULTURE
Explanation of the relationship among language, society and culture. Identification of the universal characteristics of language as well as its structure from a descriptive and conceptual perspective. Presentation of the symbolic value of verbal and non-verbal language, by means of cross-cultural analysis.

3 credits

ANTH 3000 WORLD PREHISTORY
Analysis of the development of culture from the most remote hominids to the moment at which history begins to be recorded. Contrast of the interaction between nature and culture, in time and space, and its manifestation in cultural diversity in different parts of the world.

3 credits

ANTH 3010 ETHNOGRAPHY AND ETHNOLOGY
Use of methods and techniques applicable to ethnographic work as the basis and source of ethnological knowledge. Includes the review of historical development of the ethnographic schools and the development of ethnography in Puerto Rico. Exercises in field research will be carried out.

3 credits

ANTH 3020 ANTHROPOLOGY AND RELIGION
Review of the theories of the origin of religious beliefs, practices and rituals, the supernatural and magic. Emphasis in the social function of religion and its relation with culture.

3 credits

ANTH 3050 STUDIES OF POPULAR CULTURE
Review of the different levels of capacity, creation and expression of the culture with emphasis on the developments of popular culture. Examples of human creativity through the study of the folklore, patrimony, artisan production and the cultural vanguards in the business and tourist consumer system.

3 credits

ANTH 3500 ARCHEOLOGY
Review of culture through the archaeological legacy. Includes the application of methods and techniques of archaeological interpretation; relation between facts and theories; planning of excavation projects and preparation of reports. Field visits and study trips.

3 credits

ANTH 3600 PHYSICAL ANTHROPOLOGY AND HUMAN EVOLUTION
Comparative analysis of the human being and the primates with emphasis in biological evolution, from its ancestral forms. Analysis of genetic interrelation and the concept of race.

3 credits

ANTH 4020 HEALTH ANTHROPOLOGY
Analysis of the impact of culture on the notions regarding health and disease. Includes hygiene and nutrition. Comparison of the preventive and curative practices in traditional and modern societies and in the global system.

3 credits

ANTH 4400 CULTURAL CHANGE
Analysis of socio-cultural changes as product of internal or external changes. Includes the study of processes of change such as diffusion, innovation, acculturation and the theories of social change as cultural ecology.

3 credits

ANTH 4700 CULTURES OF THE CARIBBEAN
Comparative study of historical, social, linguistic and cultural formation of Caribbean societies. Includes the connection to the areas of the circum-Caribbean: Venezuela, Colombia, Mexico and others.

3 credits

Courses in Arabic (ARAB)

ARAB 1001 BASIC ARABIC I
Introduction to the phonological system of the language and the foundations of the writing system. Emphasis on oral production and the development of vocabulary for effective communication in daily life situations.

4 credits

ARAB 1002 BASIC ARABIC II
Development of the phonological system of the language and the foundations of the writing system. Emphasis on oral production, reading and the development of vocabulary for practical purposes. Cultural aspects will be learned through cocurricular activities.

4 credits

ARAB 2021 INTERMEDIATE ARABIC I
Review of grammar and study of composition in Arabic. Emphasis on the oral language. Practice of reading at the intermediate level. Prerequisites: ARAB 1002 or two years of high school Arabic.

3 credits

ARAB 2022 INTERMEDIATE ARABIC II
Review of grammar and study of composition in Arabic. Emphasis on the oral language. Practice of reading at the intermediate level.

3 credits

Courses in Archeology (ACHA)

ACHA 3501 ARCHAEOLOGICAL MATERIALS I
Description of the processes and fundamental methodologies for the interpretation of recovered cultural material from archaeological excavations. Emphasis on the theories and the concepts related to the classification and description used in ceramic, stone, and shell archaeological materials. Prerequisites: ANTH 1040, 3500.

3 credits

ACHA 3502 ARCHAEOLOGICAL MATERIALS II
Description of the processes and the fundamental methodologies for the interpretation of the recovered cultural material from archaeological excavations. Emphasis on the theories and the concepts related to the classification and description used in archaeological materials in archaefaunal remains, archaebotanical remains, glass, construction materials, metals and plastics. Prerequisite: ACHA 3501.

3 credits

ACHA 4000 CULTURAL RESOURCES MANAGEMENT AND PUBLIC ARCHEOLOGY
Analysis of the theoretical concepts on which the practice of public archeology and the Administration of Cultural Recursos (MRC) is supported. Review of the national and international legal organizations' norms on archaeological and historical patrimony. Emphasis on the significance of the protection and conservation of the archaeological patrimony as national property. Prerequisites: ANTH 3600, 3502.

3 credits

ACHA 4010 FIELD ARCHEOLOGY
Application of the techniques and methodologies related to the archaeological field work. Formulation of the work hypotheses to be verified by the evidence recovered in the archaeological deposits. Relation of the theory to the archaeological method for the reconstruction of the historical processes. Requires 30 hours lecture and 90 hours of lab. Prerequisite: ACHA 4000.

4 credits

Courses in Art (ARTS)

ARTS 1001, 1002, 2001, 2002, 3001, 3002, 4001, 4002 THEATER WORKSHOP
Designed to familiarize students with theatrical techniques and scenery; emphasis on acting, and managing all aspects of a stage production. Students will be required to audition before officially registering in the course. A maximum of eight credits can be completed in this elective. Each semester the students will receive a grade of P or NP.

2 credits per course

ARTS 1100 COLOR THEORY
Theory and practice of the relative concepts of color: its physical qualities, its interaction in a work of art. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ARTS 1103 TECHNICAL FOUNDATIONS AND DRAWING PRACTICE
Application of basic elements and principles of art to drawing. Use of different techniques, with emphasis on work in two dimensions. Discussion of the basic elements of art and works of art at different epochs. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ARTS 1104 DESIGN
Solution of the formal and technical aspects of bidimensional and three-dimensional design. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1103.

3 credits

ARTS 1150 PHILOSOPHY OF ART
Analysis of the philosophical theories of art in different cultures. The student is stimulated to critically judge artistic expression.

3 credits

ARTS 1200 INTRODUCTION TO GRAPHIC DESIGN
Discussion of the fundamental elements of design. Practice in the use of lines, measures, colors, perspective, forms and the effect of light and shade. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ARTS 1220 ELECTRONIC IMAGE
Application of the different graphic formats of color work in impression and for the screen. Development of images of both types and the basic processes of their reproduction. Emphasis on the basic aspects of resolution, format, interpolation, handing of color and file sizes. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ARTS 1300 POTTERY I
Development of ceramic skills; techniques of throwing and hand building. Use of glazes and engobes. Requires 30 hours of lecture and 60 hours of lab.

4 credits

ARTS 1400 BASIC PHOTOGRAPHY
Discussion of photography as tool for the creation of a plastic work of art. Analysis of theory and visual contact skills in elementary photography. Correct use of the camera, film development, types of film, amplification of negatives and different grades and sizes of photographic paper. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ARTS 1420 TYPOGRAPHY DESIGN
Use of typography as a fundamental element of design, its historical perspective before computers and in the digital era. Designs of visual communication types. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ARTS 1430 PRINTED PUBLICATION DESIGN
Discussion of publication impression, color separation and impression techniques. Practice of ways of impression. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: GEIC 1000.

3 credits

ARTS 1440 PHOTO MECHANICS
Discussion of the photographic theories for graphic reproduction. Use of the process camera, darkroom techniques, orthochromatic film, the processes of reflection and transmission of light for works from original to line. Requires 15 hours of lecture and 30 hours of lab.

2 credits

ARTS 1500 ACTING I
Basic techniques for body, voice and physical improvisation, emphasizing pantomime and individual expression.

3 credits

ARTS 1540 DIGITAL PHOTOGRAPHY
Analysis of the theory and practice in handling fixed images. Use of the digital camera for the creation of digital images. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1220.

2 credits

ARTS 1600 EVOLUTION OF THE GRAPHIC DESIGN
Discussion of the evolution of graphic design, from its beginnings to the present. Emphasis on the impact of the industrial revolution in the development of the discipline.

3 credits

ARTS 2100 DESIGNS IN NATIVE MATERIALS
Study of the innate properties of materials; exploration of their varied possibilities in the field of design and the development of aesthetic sensitivity. Discussion of assembly techniques, cutting and finishing works of art in these materials. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ARTS 2104 HISTORICAL CONCEPTS OF PUERTO RICAN DESIGN
Systematic study of ideas related to design in painting, sculpture, architecture and the minor arts.

3 credits

ARTS 2105 DESIGNS IN MANUFACTURED MATERIALS
Creative experiences with disposable natural and industrial materials. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ARTS 2110 GRAPHIC DESIGN APPLIED TO INTERNET
Use of typography, still images and images in movement. Introduction to language HTML and the edition programs of Web pages. Application of the principles and elements of art in the designs of electronic pages, graphic material distributed through cyberspace and the publication of material in Internet. Requires 15 hours of lecture and 30 hours of lab.

2 credits

ARTS 2140 DRAWING I
Basic problems in graphic execution with specific emphasis on the development of individual concepts. Requires 30 hours of lecture and 60 hours of lab. Prerequisite: ARTS 1103.

4 credits

ARTS 2200 DIGITAL GRAPHIC DESIGN
Theoretical and practical application of the use of the computer in the contemporary environment of digital graphic design. Use of fundamental design elements in digital scenarios and the different design programs. Manipulation of images in two dimensions. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: GEIC 1000.

3 credits

ARTS 2250 PAINTING I
Principles of oil and acrylic painting. Figurative painting, still life and free forms. Requires 30 hours of lecture and 60 hours of lab. Prerequisites: ARTS 1104, 2140. ARTS 1100 is recommended.

4 credits

ARTS 2260 SCULPTURE I
Study of the principles and elements of art applied to works of art in three dimensions. Discussion of the sculptural form. Application to work in clay and plaster cast. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1104.

3 credits

ARTS 2300 POTTERY II
Study of advanced techniques in the construction of clay objects with the pottery wheel or by hand with emphasis on the technical aspects of ceramics. Basic chemistry of ceramics and study of the diverse methods of firing. Study of trends in the design of ceramics in different periods and their conceptual and technical solutions. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ART 1300.

3 credits

ARTS 2320 ANIMATION FOR INTERNET
Use of the visual and interactive possibilities of animation for Internet. Introduction to animation programs and animation within the context of graphic design of Web pages. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2110.

2 credits

ARTS 2330 DESIGN OF INTERACTIVE PROJECTS AND MULTIMEDIA
Application of computerized animation programs of file and interactive in the production of interactive projects. Includes the composition, form and color in the production of the projects. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2200.

2 credits

ARTS 2355 INTRODUCTION TO THE GRAPHIC ARTS
Study of the basic processes: wood engraving, linoleum engraving, engraving with burin and engraving by etching. Study of the development of engraving over time. Analysis of its particularities and possibilities as an artistic means. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2140.

3 credits

ARTS 2400 REPRODUCTION AND PRINTING
Analysis of printing methods such as typography, gravure, silkscreen printing and Off-Set. Practice of ways of graphic reproduction. Requires 15 hours of lecture and 30 hours of lab.

2 credits

ARTS 2403 HISTORY OF ART
Panoramic study of art from prehistory to the realism of the nineteenth century.

3 credits

ARTS 2500 PUPPET THEATER
Selection, adaptation and preparation of a script for a puppet theater production. Application of basic construction techniques and utilization of disposable materials for puppet production.

3 credits

ARTS 2520 THREE-DIMENSIONAL DESIGN
Elaboration of digital designs and the application of its formal and conceptual possibilities. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2200.

2 credits

ARTS 2530 VIDEO AND DIGITAL SOUND
Review of digital video, the image in movement and the sound. Practice of the edition and manipulation techniques of the digital video. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2200.

2 credits

ARTS 2531 SPECIAL EFFECTS FOR DIGITAL VIDEO
Application of special effects in the production of digital videos, by means of the use of selected edition techniques. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2530.

2 credits

ARTS 2700 MULTIPLE TECHNIQUES
Application of different plastic techniques in creating works in two and three dimensions. Analysis of technical contributions to the solution of the concept in the work.

3 credits

ARTS 2910 SUPERVISED PRACTICE
Supervised professional practice in companies, organizations or agencies or other companies compatible with the areas of graphic design. Requires the completion of a minimum of 120 hours of practice and the participation in periodic meetings with a supervisor. Prerequisite: Have approved a minimum of 29 credits of the major requirements of the programs, and course GEIC 1000.

2 credits

ARTS 2970 INTEGRATION SEMINAR OF GRAPHIC DESIGN
Integration of the knowledge and skills acquired for the production of a professional portfolio. Prerequisites: ARTS 1200, 1440, 2200.

1credit

ARTS 3105 METAL JEWELRY
Design on a small scale with emphasis on making jewelry utilizing metals such as copper, aluminum and sterling. Experimentation with casting on a small scale. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1103.

3 credits

ARTS 3150 DRAWING II - FIGURE
Study of the human anatomy as a form of art, using traditional techniques. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2140.

3 credits

ARTS 3210 PAINTING II
Introduction to freedom in handling painting techniques: oil, acrylics, collage etc. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2250.

3 credits

ARTS 3250 SCULPTURE II
Carving and modeling in one or two materials such as stone or clay. Discussion of the peculiarities in making works of art in round and relief. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ART 2260.

3 credits

ARTS 3303 CERAMICS III
Application of complex techniques and the conceptual and technical aspects of sculptural ceramics. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2300.

3 credits

ARTS 3351 SERIGRAPHY I
Study of silk-screening as a means of creation in Puerto Rico. Study of engraving techniques in silk-screening. Review of the differences in use and qualities produced by printing methods. Suitable and safe use of the materials in silk-screening. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1103.

3 credits

ARTS 3352 SERIGRAPHY II
Application of the skills and concepts of silk-screening in artistic creation. Analysis of silk-screening creations as works of art in and outside Puerto Rico. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 3351.

3 credits

ARTS 3355 LINOLEUM AND WOOD ENGRAVING TECHNIQUES
Application of engraving processes in wood and linoleum. Technical study: creation of the plate, inking and the stamping. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 2140, 2355.

3 credits

ARTS 3400 PHOTOGRAPHY III
Application of the skills learned in the field of photography. Introduction of new techniques such as solarization, "vignetting" and photographic diagram. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1400.

3 credits

ARTS 3403 HISTORY OF MODERN AND CONTEMPORARY ART
Panoramic study of the more recent artistic movements, beginning with Impressionism and including the styles of contemporary art.

3 credits

ARTS 3405 HISTORY OF PUERTO RICAN ART
Study of artistic evolution in Puerto Rico from the pre-Columbian period to the present.

3 credits

ARTS 3450 COLOR PHOTOGRAPHY
Introduction to the techniques and products utilized in color photography, stressing the composition and use of the descriptive and aesthetic aspect of color in photography. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ARTS 3505 PUERTO RICAN THEATER
Historic and contemporary study of representative Puerto Rican theater productions requiring a public performance of a theatrical production.

3 credits

ARTS 4100 WATERCOLOR
Study of the techniques of transparent water color; analysis of the techniques and styles of various artists. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2140.

3 credits

ARTS 4150 ADVANCED DRAWING
Emphasis on the development of individual concepts in graphic execution. Use of charcoal, pencil, crayon, pen, drawing with washes, etc. Requires 15 hours of lecture and 75 hours of lab. Prerequisite: ARTS 2140.

3 credits

ARTS 4202 AIRBRUSH
Application of Airbrush techniques for general painting and commercial design. Study of different materials for this technique and their safe use. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ARTS 4210 MURAL PAINTING
Study of mural concepts, independent projects. Analysis of the creation of mural paintings in and outside Puerto Rico. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2250.

3 credits

ARTS 4253 SCULPTURE III
Advanced techniques with emphasis on the development and improvement of traditional techniques. Experimentation with contemporary materials such as Plexiglas, polyester, resin, metals and others. Study of trends in sculpture over time. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 3250.

3 credits

ARTS 4254 METAL SCULPTURE
Creation of works of sculpture, utilizing techniques of soldering and casting in bronze and other metals. Requires 15 hours of lecture and 75 hours of lab. Prerequisite: ARTS 2260.

3 credits

ARTS 4255 PAINTING III
Experiments and research in painting. Emphasis on the development of individual concepts. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 3210.

3 credits

ARTS 4256 SCULPTURE - THE HUMAN FIGURE
Sculptural study of the human figure. Analysis of movement, proportion and rhythm of the human figure and its three-dimensional projection. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2250.

3 credits

ARTS 4303 CLAYS AND GLAZES
Chemical-physical relation of the materials utilized in ceramics and how they react during the different stages in making a ceramic object. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1300.

3 credits

ARTS 4350 INTAGLIO TECHNIQUES
Study and application of different techniques of Intaglio such as dry point, etching, aquatint and others. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2355.

3 credits

ARTS 4352 LAYOUT DESIGN
Design preparation for photo-mechanic printing. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1103.

3 credits

ARTS 4353 LITHOGRAPHY
Study and practice of the different graphic design techniques used in lithography. Knowledge of different materials used. Experimentation with the medium. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2355.

3 credits

ARTS 4355 PHOTO SERIGRAPHY
Study of photographic images for creation, handling and printing when using silk-screening techniques. Emphasis on the application of photographic and typesetter prints in silk-screening artistic creations. Use of journalistic images, selection and handling of photographs taken to be used in the work and for making manual and electronic prints. Experimentation with typographic prints in silk-screening. Requires 15 hours of lecture and 45 hours of lab. Prerequisites: ARTS 1104, 3351.

3 credits

ARTS 4360 DIGITAL ART
Use of the computer for making artistic works. Study of existing equipment and programming for making images, the manipulation and handling of images. Emphasis on the application of the elements and principles of art in images. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 1104, GEIC 1010.

3 credits

ARTS 4365 COMPUTERIZED GRAPHIC DESIGN
Use of the computer and digital processes for making graphic designs. Study of programs for the design and printing of digital graphic material. Introduction to electronic publishing design. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 1104, GEIC 1010.

3 credits

ARTS 4453 SPECIALIZED PHOTOGRAPHY
Introduction to the processes and techniques used by Island newspapers to publish photographs. Emphasis on the production of a visual and written narrative. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1400.

3 credits

ARTS 4500 STAGECRAFT
Global study of technical areas in theater: scene, costume and lighting design. Models and drawing projects required. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1103.

3 credits

Courses in Art Education (ARED)

ARED 1080 FIELD EXPERIENCES IN ART EDUCATION I
Introduction of the educational system with emphasis on the visual arts program. Selected group or individual experiences in schools and other agencies with the visual arts component. Requires a minimum of 10 hours in the educational scenario and 10 hours of meetings with the professor. Course must be passed with a minimum grade of B.

1 credit

ARED 1900 FUNDAMENTALS OF ART EDUCATION
Introduction to the study of art education principles. Review of the theories and philosophies of art education. Includes the developmental stages in learning art. Prerequisites: ARED 1080, EDUC 2021.

3 credits

ARED 2080 FIELD EXPERIENCES IN ART EDUCATION II
Introduction to the teacher-student relationship. Selected group or individual experiences in schools and other agencies with the visual arts component. Requires a minimum of 15 hours in the educational scenario and 15 hours of meetings with professors. Course must be passed with a minimum grade of B. Prerequisite: ARED 1080.

2 credits

ARED 3080 CLINICAL EXPERIENCES IN ART EDUCATION I
Educational practice as an assistant teacher in a school or visual arts program. Initial work with small groups, then with the whole group. Requires a minimum of 25 hours in the educational scenario and 15 hours of meetings with the professor. Course must be passed with a minimum grade of B. Prerequisites: ARED 1080, 2080, EDUC 3013.

2 credits

ARED 3750 EDUCATIONAL TECHNOLOGY IN ART TEACHING
Study, operation, and practice of audiovisual resources for the development of educational materials. Operation of different educational and graphical computer programs including the selection, evaluation, and their use to make the educational process viable in the area of the arts, as well as the graphical and artistic productions that facilitate the teaching-learning process. Requires 15 hours of lecture and 30 hours of lab. Prerequisites: ARED 1900, GEIC 1010.

2 credits

ARED 3850 METHODS OF TEACHING ART IN THE ELEMENTARY SCHOOL
Study of the relation between curriculum and instruction. Includes learning theories applied to the methodology of teaching visual arts in the elementary school. Provides experiences for the development of skills in the design,

selection, and modification of teaching units, courses, and programs. Practice in writing plans, experience with materials and art media to be used at this level. Demonstration classes. Prerequisites: ARED 1900, 3750.

2 credits

ARED 3851 METHODS IN ART EDUCATION IN THE SECONDARY SCHOOL
Discussion of the visual arts education methods at the secondary level. Practice in the writing of education plans, and demonstration classes. Experiences with materials and art media to be used at this level. Prerequisites: ARED 1900, 3850, EDUC 4011.

2 credits

ARED 4015 EVALUATION, ASSESSMENT AND RESEARCH IN ART TEACHING
Study and application of teaching-learning theories, the techniques, and the mediums used by art teachers in planning and developing educational activities. Diagnosis of needs, formulation of goals, selection of content, and planning of the techniques that will be used taking into account the principles of design and the elements of art. Application of evaluation instruments and assessment techniques to improve the teaching-learning process. Use of quantitative and qualitative results to introduce students to the research that they can perform in the classroom.

3 credits

ARED 4913 CLINICAL EXPERIENCES ART EDUCATION II
Practice teaching as a student teacher under the direct supervision of a cooperating teacher, specialized in art education, and of a University supervisor. The student teacher will have the opportunity to put art education methodology into practice and will have the responsibility of planning and giving a class during the school semester. The practicing student will be placed in an elementary or secondary private or public school classroom. The classroom becomes a laboratory where techniques, methods strategies of the profession are used. A minimum of three hours daily from Monday to Friday in an educational scenario is required. Prerequisites: 90 credits including ARTS 1104, 2403, ARED 3750, 3850, 4015.

6 credits

Courses in Auditing (AUDI)

AUDI 2195 GOVERNMENTAL REGULATIONS IN BUSINESS
Introductory study of regulations applying to business, such as: income tax laws, movable and immovable assets, sales tax, inheritance, and donations. Includes employer regulations related to occupational health and safety, and special laws that regulate business.

3 credits

AUDI 3091 FUNDAMENTALS OF INTERNAL AUDITING
Introduction to internal and operational auditing. Evolution and characteristics of internal auditing are studied as well as the relationship of auditing to other disciplines and its role in management. Complete view of the auditing cycle is presented: initial stage, report preparation and discussion. Study and analysis of different formats and documents in data collection. Relative importance of the evidence collected during the audit is examined and the Code of Professional Ethics of the Internal Auditor is studied. Prerequisite: ACCT 2062.

4 credits

AUDI 3092 INTERNAL AUDITING ADMINISTRATION
Function of the internal auditor within the administrative framework of the enterprise. Analysis of the responsibilities of the Internal Auditing Department. Strategy planning for the development of a short term and long term work plan with emphasis on relationships to external auditors, management and the board of directors. Study of the implementation of the quality control program for evaluating internal auditing. Prerequisite: AUDI 3091.

3 credits

AUDI 3190 AUDITING OF INFORMATION SYSTEMS
Analysis of the responsibility and function of the auditor in the field of information systems. The nature and operation of the systems are described, as well as the means for testing the efficiency and effectiveness of their controls. Use of computerized programs and application of auditing techniques by computer such as: test data,

extraction of samples, tracking by computer and development of flow charts. Prerequisites: AUDI 3091, GEIC 1010.

4 credits

AUDI 4194 REPORT WRITING IN AUDITING
Preparation of internal, external, compliance and operational auditing reports. This includes letters of representation, management, contract, recommendations for internal control, narrative, findings summary, internal auditing reports, opinions and other written communications that are part of the duties of the auditor's role. Prerequisites: AUDI 3091, ACCT 4010.

3 credits

AUDI 4195 INVESTIGATION OF FRAUD
Analysis of several aspects of fraud which include: its nature, its prevention, detection and investigation. The course is designed to expose the student to the process of fraud investigation that involves compiling evidence, taking declarations, writing reports, assisting in its detection and prevention, etc. Prerequisites: ACCT 4010, AUDI 3092.

3 credits

Courses in Bioinformatics (BIIN)

BIIN 3010 COMPUTATIONAL BIOLOGY
Practical approach to the computer applications in molecular biology. Study of the representation and analysis of biological sequences and structural information, including the relation between sequences, structure, and functions of the macromolecules. Includes sequence patterns, probability techniques, graphics and simulations. Emphasis on the use of algorithms to align sequences, allowing the identification of genes and secondary structures. Requires work in an open laboratory. Prerequisites: COMP 2900, BIOL 4604.

3 credits

BIIN 3020 MEDICAL INFORMATION
Principles of database design applied to health sciences, human-computer interfaces, medical vocabulary, codification systems, decisional analysis methods in medicine, architecture of clinical information systems, and methods to measure costs and benefits of health systems. Biomedical applications of Internet, use of literature and databases for molecular sequences, as well as systems for telemedicine. Requires work in an open laboratory. Prerequisites: BIIN 3010, COMP 2900.

3 credits

Courses in Biology (BIOL)

BIOL 1001 PRINCIPLES OF PLANT BIOLOGY
Introduction to the basic concepts of the structure and functioning of plants as live organisms. Emphasis on the study of the most important plants in the ornamental horticulture field. The organization, morphology, development and reproduction of ornamental plants in Puerto Rico and the Caribbean. This course is designed for students in the Associate Degree in horticulture sciences. Requires 30 hours of lecture and 30 hours of lab.

3 credits

BIOL 1003 BASIC BIOLOGICAL CONCEPTS
Basic concepts of biology such as: cells, genetics, physiology, development and ecology. Not to be taken for credit by majors in biology. Requires 30 hours of lecture and 30 hours of lab.

3 credits

BIOL 1006 FUNDAMENTALS OF BIOLOGY
Basic concepts in biology. The anatomy and function of the human respiratory, cardiovascular, excretory, digestive, nervous, endocrine and immunological systems. This course cannot be taken to meet the requirements of majors in natural sciences and nursing. Requires 45 hours of lecture and 30 hours of lab.

4 credits

BIOL 1101 MODERN BIOLOGY I
Study of the characteristics and organization of living organisms. Emphasis on the structure of the main macro-molecules, cells, cellular cycle and their metabolic processes. Use of scientific reasoning for the study of biological processes.

3 credits

BIOL 1102 MODERN BIOLOGY II
Study of genetic processes. Includes the concepts of cellular division, Mendelian and molecular heredity, genetic expression and the fundamental concepts of development. Discussion of the ecology and evolution concepts. Prerequisite: BIOL 1101.

3 credits

BIOL 1103 SKILLS LABORATORY I
Development of basic laboratory skills and techniques. Emphasis on safety rules, measuring systems, statistical methods and the adequate use of laboratory equipment and elections information resources. The scientific method is used for problem solving in the field of biology. Students are required to submit laboratory reports following established scientific formats. Requires 45 hours of lab.

1 credit

BIOL 1116 FUNDAMENTALS OF HUMAN ANATOMY AND PHYSIOLOGY
Fundamental concepts of the structure and functions of different systems of the human body, including their pathophysiological consideration. Not to be taken for credit by majors in biology. Requires 60 hours of lecture and 45 hours of lab.

5 credits

BIOL 2010 FUNDAMENTALS OF VEGETABLE AND ANIMAL BIOLOGY
Integrated study of the main anatomic and physiological aspects in plants and animals. Emphasis on the contrast between evolutionary processes, development and growth, as well as the ecological relationships between both groups. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: BIOL 1102, 1103.

4 credits

BIOL 2013 SKILLS LABORATORY II
Application of laboratory techniques used for the qualitative and quantitative analysis of living organisms with emphasis on cells and biological macro-molecules. Use of statistical methods for the analysis and interpretation of generated data. Students are required to submit laboratory reports following established scientific formats. Requires 45 hours of lab. Prerequisites: BIOL 1103, CHEM 1111.

1 credit

BIOL 2103 ZOOLOGY
Study of the taxonomy, structures, function, reproduction and development of the principal animal groups. Emphasis on ecological and evolutionary interrelations. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 1102.

3 credits

BIOL 2104 BOTANY
Study of the structure, function and reproduction of the main plant groups. Discussion of the importance of plants in the ecosystems and the socioeconomic impact. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 1102.

3 credits

BIOL 2151 HUMAN ANATOMY AND PHYSIOLOGY I
Fundamental concepts of histology and the integumentary, skeletal, muscular and nervous systems in the human body from the anatomical and physiological points of view. Their pathophysiological considerations are excluded. Not to be taken for credit by majors in biology. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 1003.

3 credits

BIOL 2152 HUMAN ANATOMY AND PHYSIOLOGY II
Fundamental concepts of the endocrine, reproductive, cardiovascular, lymphatic, immunological, excretory, respiratory and digestive systems in the human body. Their pathophysiological considerations are excluded. Not be taken for credit by majors in biology. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2151.

3 credits

BIOL 2153 BIOSTATISTICS
Application of statistics in biological research. Emphasis on the fundamental concepts of descriptive statistics for the analysis of grouped and not grouped data for a variable or multivariables. Application of the concepts of linear correlation, linear regression and probability distributions. Use of technological tools for statistical analysis. Prerequisites: MATH 1500, BIOL 1102.

3 credits

BIOL 2154 FUNDAMENTALS OF MICROBIOLOGY
Basic principles of microbiology emphasizing bacteria as a representative prokaryotic cell. Position of this cell in relation to the other microorganisms and viruses regarding sanitation and health in higher organisms. Not to be taken for credit by majors in biology. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 1003 or 1102.

3 credits

BIOL 2155 GENETICS
Study of the processes related with heredity and its regulation. Includes from classical to molecular genetics and their relation with evolutionary processes. Use of prokaryote and eukaryote cells as models to illustrate these aspects. Discussion of ethical topics related to genetic manipulation. Prerequisites: BIOL 1102, GEMA 1200.

3 credits

BIOL 2600 FOUNDATIONS OF OCEANOLOGY
Introduction to the oceans and the topics that make up the discipline of marine sciences. Includes: chemical, physical, geological and biological oceanology. Emphasis on the discussion on the history of oceanology, the physical and chemical properties of sea water, the physical processes of currents, the tides and waves, the geological aspects of the ocean floor, the different ecosystems of the sea, biological processes and the effect of climatic changes on the seas and oceans. The primary concepts related to examples in the oceanology of Puerto Rico and the Caribbean.

3 credits

BIOL 2800 INTRODUCTION TO ASTROBIOLOGY
Study of the origin, evolution, distribution, and search for life in the universe. Emphasis on the discussion of the origin and future of life, life in extreme environments, the natural and anthropogenic factors that could alter the evolution of the species on the planet and the search for extraterrestrial intelligence.

3 credits

BIOL 3105 GENERAL MICROBIOLOGY
Study of microorganisms with emphasis on the study of bacteria. Includes their morphology, physiology, genetics, taxonomy, ecology, host-parasitic relation and control. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: BIOL 1102, 1103, CHEM 1111.

4 credits

BIOL 3106 ANATOMY AND HUMAN PHYSIOLOGY
Study of the physiological structures and mechanisms of the human body. Emphasis on the integration of the corporal systems; maintenance and alteration of homeostasis. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: CHEM 2212.

4 credits

BIOL 3205 ECONOMIC ZOOLOGY
Economic exploitation of vertebrates and invertebrates. Emphasis on the reproduction, raising and handling of animals for consumption. Breeding and conservation of animals for the study of zoology. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2010.

3 credits

BIOL 3213 PARASITOLOGY
Study of morphology, taxonomy, life cycles and epidemiological aspects of human and domestic animal parasites. Emphasis on the host-parasite relationships. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2103.

3 credits

BIOL 3214 ENTOMOLOGY
Study of the structure, physiology, taxonomy, behavior, ecology and economic importance of insects. Requires 30 hours of lecture and 45 hours of lab. Includes field studies. Prerequisite: BIOL 2103.

3 credits

BIOL 3216 ANIMAL BEHAVIOR
Study of the internal and external factors responsible for the regulation, development, and variation of animal behavioral patterns. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2103.

3 credits

BIOL 3219 BIOLOGY OF INVERTEBRATES
Study of the morphology, physiology, ecology and systems of the representative invertebrate groups. Emphasis on species native to Puerto Rico. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2103.

3 credits

BIOL 3255 ECONOMIC BOTANY
Economic importance of plants emphasizing the use of their products, cultivation and the relationship to human history. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2010.

3 credits

BIOL 3257 SYSTEMATIC BOTANY
Classification and nomenclature of vascular plants. The laboratory includes field trips. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2010.

3 credits

BIOL 3309 FOOD MICROBIOLOGY
Interaction between microorganisms and food; techniques for control of microorganisms and food preservation; production of fermented foods and diseases transmitted by microorganisms developing in foods. Includes health and quality controls. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3105.

3 credits

BIOL 3405 IMMUNOLOGY
Study of defense mechanisms of vertebrates at the cellular and molecular level. Description of the morphology and functions of the cells that participate in the immunological processes and of their products, such as antibodies, complements and other substances. Study of the structures and functions of immunoglobulins. Characterization of the reaction between antigens and antibodies, the regulation of the immunological system and the genetic controls. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3105.

3 credits

BIOL 3454 PLANT ANATOMY
Characteristics of cells and tissues of vascular plants. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2010.

3 credits

BIOL 3503 GENERAL ECOLOGY
Study of the biotic and abiotic factors limiting the distribution and abundance of organisms and their relation with the evolutionary processes. Emphasis on the adaptations of organisms with their environment and the structure of the different organizational levels that make up the biosphere from the species to the biome. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 2104, CHEM 1111.

3 credits

BIOL 3504 ENVIRONMENTAL HEALTH
Interrelationship between the environment and human health. The effect of contamination by toxic and non-toxic wastes. Risk factors and biological, physical and social implications, as well as prevention and mechanisms for reducing the environmental impact are analyzed. Prerequisites: BIOL 3105, GEMA 1200.

3 credits

BIOL 3505 ENVIRONMENTAL LAWS, POLICIES AND REGULATIONS
Legal aspects and environmental policy, including their history and the scope of laws and regulations. The evaluation of an Environmental Impact Statement is required. Prerequisite: BIOL 3504.

3 credits

BIOL 3630 MARINE SCIENCE DIVING
Development of the skills and the basic techniques of diving as a tool of marine research, particularly in the Caribbean. Includes the obtaining of data, specimen collection and planning, and implementation of marine research. Study of the basic concepts of diving. Includes practice in a swimming pool and in the sea with a certificated instructor. Prerequisites: BIOL 2600, satisfactory swimming test and medical certification of diving aptitude.

3 credits

BIOL 3640 NAUTICAL SCIENCES
Study of the principles of handling boats and navigation as a tool in marine sciences. Includes types and uses of recreational and research boats, cartographic use, piloting, moorings and knots, security in navigation and the use of electronic navigation technology (marine radio, radar, GPS and echo sonar). Prerequisite: BIOL 2600.

2 credits

BIOL 3904 TOXICOLOGY
Study of the principles of toxicokinetics and toxicodynamics, methods of analysis and evaluation of mutagenic, teratogenic and carcinogenic agents. Emphasis on hepatoxicology and neurotoxicology. Prerequisites: BIOL 3106, CHEM 2222.

3 credits

BIOL 4000 MARINE BIOLOGY
Analysis and discussion of the main concepts of marine biology. Includes the biotic diversity of the seas, coasts and estuaries, their distribution, physiology, behavior, adaptations, ecology and the relations between the organisms and the physical and-chemical environments. In these topics, tropical, and Caribbean marine biology are emphasized. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2600.

4 credits

BIOL 4104 PLANT PHYSIOLOGY
Fundamental functions of high-order plants, emphasizing the relationships of water, photosynthesis and reproduction. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2010.

3 credits

BIOL 4105 FUNDAMENTALS OF GEOGRAPHIC INFORMATION SYSTEMS (GIS)
Analysis of GIS concepts by means of computerized systems that process and examine spatial data. Discussion of geography, cartography and space analysis concepts based on geographic locations. Application of space analysis

using data and maps of Puerto Rico and other parts del the world. Requires 45 hours of lecture/lab. Requires additional time in an open lab.

3 credits

BIOL 4109 GENERAL PHYSIOLOGY
Analysis of the functions and processes exhibited by animals. Includes the concepts of transportation, respiration, digestion, excretion, reproduction, and hormonal, muscular and nervous control. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 2103, CHEM 2222.

3 credits

BIOL 4303 MYCOLOGY
The morphological, physiological and taxonomical study of fungi. Emphasis on their economic, medical, industrial and environmental importance. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3105.

3 credits

BIOL 4304 MEDICAL MYCOLOGY
Fungi pathogenic to human beings with emphasis on the epidemiology, clinical aspects, diagnosis and prevention. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3105.

3 credits

BIOL 4305 MEDICAL MICROBIOLOGY
Microorganisms which are pathogenic to human beings, emphasizing epidemiology, clinical conditions, diagnosis and prevention. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3105.

3 credits

BIOL 4306 VIROLOGY
Introduction to the concepts of the biology of viruses of bacteria, plants and animals, including morphological, genetic and epidemiological aspects. Emphasis on the principles of molecular biology that regulate the cycle of viral infection, the cellular metabolism and the cellular and systemic defense mechanisms. Prerequisites: BIOL 2155, 3105.

3 credits

BIOL 4307 MICROTECHNIQUES
The fixation, preservation and histological and histochemical preparation processes using different species of organisms. Requires 15 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3106.

2 credits

BIOL 4403 EVOLUTION
The processes responsible for the evolution of species. Evidence and contributions of paleontology, biogeography, molecular biology, genetics and ecology and their importance in the development of Western thought. Prerequisite: BIOL 2155.

3 credits

BIOL 4405 EMBRYOLOGY
Study of embryonic cells supplemented by experimental methods. Emphasis on fertilization, maturation and ontogenesis. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3106 or BMSC 3012.

3 credits

BIOL 4407 HUMAN ANATOMY
Theoretical and practical study of tissues and organs and their interaction in the systems of the human body. Course designed for students in the Health Science Program. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2103.

3 credits

BIOL 4408 COMPARATIVE FUNCTIONAL ANATOMY
Comparative study of vertebrates from the point of view of the relationship between structure and function. Systems that have evolved and diversified as a result of environmental conditions. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3106.

3 credits

BIOL 4433 INDUSTRIAL MICROBIOLOGY
Industrial applications of microorganisms in the production of metabolites with commercial importance. The processes of fermentation, biodegradation and bioconvertion are discussed. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 3105, CHEM 2222.

3 credits

BIOL 4494 PHARMACOLOGY
The effects of medicine on the human body. Discussion of classification, action mechanisms, dosage, side effects, contraindications and interactions with other prescription drugs. Prerequisites: BIOL 3106 or BMSC 3012 and CHEM 2222.

3 credits

BIOL 4503 CONSERVATION AND MANAGEMENT OF NATURAL RESOURCES
Application of management techniques in the conservation of natural resources. Emphasis on water resources, coastal and forest resources, soils, flora and fauna. Field trips are required. Prerequisite: BIOL 3503.

3 credits

BIOL 4600 HISTOLOGY
Function and structure of tissues, individual cells and their integration in the systems. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3106.

3 credits

BIOL 4604 CELLULAR AND MOLECULAR BIOLOGY
Study of the cell and its components. Discussion of the relationship between the cellular structures and their functions; their metabolic processes and cellular communication and the flow of molecular information. Discussion of experiments that have contributed to the study of the sell. Prerequisites: BIOL 2155, CHEM 2221. Recommended course: CHEM 2222.

3 credits

BIOL 4605 SKILLS LABORATORY III
Emphasis on the use experimentation techniques for problem solving and for the search for answers. Molecular biology and bioremediation techniques are used. A research project including the design and the performance of the experiment is required as well as the writing of the corresponding scientific report. Requires 60 hours of lab. Prerequisite: BIOL 2013.

2 credits

BIOL 4700 AGRICULTURAL AND ENVIRONMENTAL BIOTECHNOLOGY
Analysis of the effects and applications of the biotechnology in food production, in human health and in the preservation of the environment. Includes the study of theoretical foundations in biotechnology, current biotechnological strategies and the products that are generated through biotechnology. Discussion of the ethical, legal and economic aspects that arise from the development and implantation of biotechnology in society.

3 credits

BIOL 4905 INTRODUCTION TO PATHOLOGY
Anatomical and histological alterations occurring in the different human systems, including their etiology, description and clinical aspects. Prerequisite: BIOL 3106 or BIOL 4407.

3 credits

BIOL 4907 HEALTH EDUCATION
Educational methods and techniques for achieving change in people's attitudes on health matters. Prerequisite: BIOL 3504.

3 credits

BIOL 4909 PUBLIC HEALTH
Magnitude, distribution and causes of diseases in human populations. Mechanisms of disease transmission, incidence and prevalence in populations. Prerequisite: BIOL 4907.

3 credits

BIOL 4912 PRACTICUM IN BIOLOGY
Supervised work practice in industries, research laboratories, governmental agencies, hospitals or other enterprises related to the different areas of study offered in biology. A minimum of 135 hours is required as well as periodical meetings with the course coordinator. Prerequisites: Have passed all core courses in biology at the bachelor's level and the authorization of the Director of the Department.

3 credits

BIOL 4931 MARINE RESEARCH I
Planning a marine research project. Development and beginning of a research project decided with and under the supervision of a professor-mentor. Includes the review of literature, development of methodology, obtaining and analysis of data, on field trips. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 4000.

3 credits

BIOL 4932 MARINE RESEARCH II
Implementation of a research project decided with and under the supervision of a professor-mentor. Includes obtaining and analysis of data, on field trips. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 4931.

3 credits

BIOL 4953 RESEARCH METHODS
Identification and utilization of the scientific method in the solution of problems. Setting up of hypothesis, bibliographical search, design and implementation of the experiment, data interpretation and writing scientific papers. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: 30 credits in natural sciences.

3 credits

BIOL 4955 INTEGRATING SEMINAR
Integration of the knowledge acquired by students through oral and written presentations of creative work, using scientific papers as primary base in their specialization in the area of biology. Prerequisite: 30 credits in biology.

1 credit

BIOL 4960 BIOETHICS
Survey of the ethical considerations in life sciences, in scientific research as in their applications. Discussion of the responsibility in research with human and animal participants, as well as the ethical dimensions of other practices carried out in life sciences. Analysis of cases and application of bioethical principles and applicable regulations. Prerequisite: Have passed at least 90 credits.

3 credits

Courses in Biomedical Sciences (BMSC)

BMSC 2210 HUMAN GENETICS
Fundamental concepts of human genetics, from the perspective of structure, function and transmission of genes; including interaction gene-gene and gene-environment. Emphasis on the molecular aspects of human inheritance, genetic etiology of diseases and research techniques in human genetics. Prerequisite: BIOL 1102.

3 credits

BMSC 3011 FUNDAMENTALS OF HUMAN ANATOMY AND PHYSIOLOGY I
Fundamental concepts of histology and the integumentary, skeletal, muscular and nervous systems of the human body from the anatomical and physiological point of view, including pathophysiological considerations of these. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 1102.

3 credits

BMSC 3012 FUNDAMENTALS OF HUMAN ANATOMY AND PHYSIOLOGY II
Fundamental concepts of the endocrine, reproductive, cardiovascular, lymphatic, immune, excretory, respiratory and digestive systems of the human body, including pathophysiological considerations. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BMSC 3011.

3 credits

BMSC 4015 BIOCHEMISTRY OF HUMAN PHYSIOLOGY
Study of metabolic transformations that chemical compounds and biopolymers undergo at cellular level. Physiological studies that include bioenergetics, vitamin and hormone metabolism, anabolism and catabolism of carbohydrates, lipids and proteins, production of energy through the cycle of tricarbocyclic acid and oxidation phosphorilation. Prerequisite: CHEM 2222.

3 credits

BMSC 4020 BIOMEDICAL ETHICS
Ethical aspects in biomedical sciences. Analysis, discussion and application of ethics in situations of conflict in medicine and biomedical research. Prerequisite: Have completed 24 credits in the area of Biomedical Sciences.

3 credits

Courses in Biotechnology (BIOT)

BIOT 3250 MOLECULAR BIOTECHNOLOGY
Analysis of the principles and the application of molecular biotechnology techniques used in the genetic manipulation of plants, animals, and microorganisms with the purpose of synthesizing products for human benefit. Application of techniques of recombinant DNA, restriction enzymes, vectors, cloning, sequencing, and amplification of DNA and bioinformatics. Includes the ethical and legal aspects related to biotechnology. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 2155, 3105.

3 credits

BIOT 3750 RECOMBINANT DNA TECHNOLOGY
Analysis of the techniques used for genetic manipulation and the expression in cells and complex organisms. Emphasis on the use of bioinformatics and bimolecular characterization methods. Discussion of gene therapy, bio-drug production, agronomic improvement and diagnosis and forensic technologies. Includes related ethical and legal aspects. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 2155, BIOT 3250.

3 credits

BIOT 4620 TISSUE CULTURE AND TECHNICAL APPLICATIONS
Analysis of the methodology of the culture of cells coming from mammals, plants and insects. Discussion of cellular culture applications in the biotechnology industry and their ethical implications. Emphasis on the requirements of clean rooms, sterile clothes, aseptic techniques, instrumentation, classification of cellular lines, detection of contamination and quality controls. Application of cellular culture techniques and techniques for the detection of components or cellular products. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 4604.

3 credits

BIOT 4801 OPERATIONAL BIOTECHNOLOGY I
Analysis of the upstream manufacturing processes of biological products in eukaryotic cells on a large scale. Emphasis on cellular culture in bioreactors. Discussion of the regulations and operational aspects in the biotechnological industry. Prerequisites: BIOT 3750, 4620.

2 credits

BIOT 4802 OPERATIONAL BIOTECHNOLOGY II
Analysis of downstream processes of recovery and purification of biological product on a large scale in the biotechnological industry. Discussion of the regulatory provisions of the regulating agencies for compliance with the quality requirements of the final product. Prerequisites: BIOT 4801, 4928.

2 credits

BIOT 4928 PROTEIN PURIFICATION AND ANALYSIS
Analysis of the methods used in the separation, purification, filtration and drying of native and recombinant proteins. Application of the techniques of column chromatography, centrifuging, separation by membrane, and filtration of tangential and dried flow. Discussion of protein structure, and the administration and analysis of protein activity. Requires 30 hours of lecture and 45 hours of lab. Prerequisites BIOL 4604, CHEM 4220.

3 credits

Courses in Business Administration (BADM)

The courses in Business Administration are designed to develop understanding of the principles that regulate the business activities of enterprises. They aim to expose students to the concepts, principles and fundamental practices of the different disciplines of business administration in major courses or in related and elective courses. The different fields are: management, accounting, marketing, economics, finance, quantitative methods and the use of human resources.

These courses allow students to understand and apply contemporary concepts, theories, analysis instruments and points of view on human behavior, all of which are vital elements in terms of the economic and social progress of the country.

BADM 1110 INTERGOVERNMENTAL FINANCIAL ADMINISTRATION
Administrative, political and economic aspects of revenue systems at the federal, state and local levels. Analysis of major taxes, intergovernmental financial relations, and the administration of public enterprise and debt. Prerequisite: MAEC 3234.

3 credits

BADM 1550 BUSINESS MANAGEMENT AND ORGANIZATION (FOR ASSOCIATE DEGREE CANDIDATES)
Management and organization in relation to types of business, location and physical layout; the buying, selling, pricing and operating functions of business.

3 credits

BADM 1900 FUNDAMENTALS OF MANAGEMENT
Description of organizational fundamentals, development and operations. Emphasis on managerial functions: planning, organization, direction and control. Discussion of topics that affect modern management, such as: globalization, ethics, technology, human resource integration, handling of change, competitiveness, and innovation and the handling of diversity. Examples of theory through case studies.

3 credits

BADM 2030 BUSINESS MATHEMATICS (FOR ASSOCIATE DEGREE CANDIDATES)
Intensive practice in the computation and use of percentages, decimals, fractions and typical business calculations such as interests, averages, ratios, use of scales and the interpretation of graphs. Use of various types of calculators frequently found in the modern business office.

3 credits

BADM 2050 BUSINESS FINANCE (FOR ASSOCIATE DEGREE CANDIDATES)
Review of the role of the financial manager of a business or industrial enterprise in the procurement and management of short-term, intermediate and long-term funds with special emphasis on profitability cost, sources, timing and taxation.

3 credits

BADM 2130 MARKETING (FOR ASSOCIATE DEGREE CANDIDATES)
Nature of marketing: its functions, channels and institutions, pricing, marketing research, sales promotion and advertising.

3 credits

BADM 2262 TOTAL QUALITY MANAGEMENT FOUNDATIONS
Basic foundations of the total quality philosophy in organizations. Emphasis on methodology, architecture, philosophy, analysis and implementation of the concepts using more efficient tools to evaluate system performance and to satisfy clients' needs. Prerequisite: BADM 1900.

3 credits

BADM 2650 HUMAN BEHAVIOR IN THE ORGANIZATION
Integrated study of the knowledge and skills necessary to work with individuals and groups. Analysis of the dynamics of human interactions in the organization. Emphasis on managerial strategies for handling situations related to work such as: motivation, communication, change, conflict, organizational design, decision making, leadership, team work, ethical values and principles. Prerequisite: BADM 1900.

3 credits

BADM 3020 SECURITY AND HYGIENE IN THE WORK ENVIRONMENT
Analysis of the fundamental concepts in security and hygiene in the work environment. Includes industrial and environmental factors and dangers, their effects and their control. Interpretation of federal and state laws, regulations and the standards applicable to security and health in the work place. Emphasis on the discussion of methods of prevention of risks to employees' health.

3 credits

BADM 3250 TRANSPORTATION MANAGEMENT
Application of the knowledge of materials distribution. Emphasis on theoretical aspects applied to transportation. Includes the discussion of transportation modes integrated with topics of product distribution, company policies and external forces. Analysis of the relation between demand, cost and rates, and their influence in the economic and corporative system. Prerequisite: BADM 1900.

3 credits

BADM 3300 COMMUNICATION IN MANAGEMENT
The basic elements of oral and written communication in the context of business administration. Emphasis on the development of communication skills and strategies at international business levels. Analysis of communication and its impact on intercultural business relations.

3 credits

BADM 3313 MERCANTILE LAW
Analysis of the principles and requirements that regulate civil and mercantile contracting. Applicable laws according to the business code, civil code, jurisprudence and special laws. Also included are the laws and regulations that rule the organization, operation and responsibilities of the different types of enterprises. Typical negotiable tools and the laws that apply. Contemporary trends of trade laws

3 credits

BADM 3320 PUBLIC POLICIES TOWARD BUSINESS
The role of government in economic life with emphasis on the regulation of competition and monopoly in Puerto Rico and other areas.

3 credits

BADM 3330 HUMAN RESOURCES MANAGEMENT
Analysis of the effectiveness of rules and practices related to human resources in the public and private sectors. Emphasis on the activities of strategic planning of human resources, analysis, description, specification and design of positions, recruitment, selection and hiring, equal opportunity laws, orientation, training, development, personnel

changes, personnel evaluation, compensation, health and occupational security, industrial and labor relations, discipline, and audit of human resources. Prerequisite: BADM 1900.

3 credits

BADM 3340 MANAGEMENT POLICIES AND STRATEGIES
Behavioral management analysis and commercial ethics as part of the production process at the national and international levels. Application to small businesses. Prerequisite: BADM 1900.

3 credits

BADM 3490 SUPERVISION
Analysis of the behavioral sciences related to the sales and duties of management personnel with emphasis on line supervision. Discussion of supervisory problems related to strategic planning, recruitment and selection of personnel, training, evaluation, entrustment of authority, discipline, group morale, diversity, management of time and change. Prerequisite: BADM 1900.

3 credits

BADM 3570 ADMINISTRATIVE AUDITING
Nature and roles of auditing operations with respect to administrative policy, programs, organization, procedure, financing, personnel and their behavior. Prerequisites: PUAD 3300, 3510.

3 credits

BADM 3820 MANAGEMENT SCIENCES
Application of quantitative methods that are adaptable to production and operations under conditions of certainty, risk and uncertainty to company decision-making. Problem solving using the techniques of linear programming, transportation, allocations, project management, queuing theory, decision analysis and simulation. Prerequisite: MAEC 2140.

3 credits

BADM 3900 BUSINESS INFORMATION SYSTEMS
Study of the foundations and concepts of information systems and their use in organizations. The application of information systems in the solution of problems and their implications in managerial processes. Use of application programs that help in decision making. Sixty hours of lecture-lab. Prerequisites: BADM 1900, GEIC 1010.

3 credits

BADM 3950 HUMAN RESOURCES TRAINING AND DEVELOPMENT
Application of different learning methods in the design, implementation and evaluation of the training programs in work organizations. Planning of professional training programs that help motivate, stimulate and develop the human resources and permit them to maintain the competencies necessary to be effective and efficient in their performance. Also included is the planning of and training programs that will create a positive work atmosphere. Prerequisite: BADM 3330.

3 credits

BADM 4190 ACCOUNTABILITY IN THE PUBLIC SECTOR
Analysis of problems of distribution of resources in the public sector, especially social programs, including the cost of benefits analysis, the extent of result, the quality of service that determines demand, and the characteristics of resources invested. Prerequisites: PUAD 3300, 3510.

3 credits

BADM 4300 MANAGERIAL ECONOMICS
Application of contemporary economic theory. Use of analytical instruments from other disciplines in the managerial decision-making process. Prerequisites: MAEC 2212, 2221.

3 credits

BADM 4320 QUANTITATIVE MODELS IN MANAGEMENT
Application of management principles to the science of research of operations in the management process. Development, analysis and interpretation of quantitative models in the decision-making process of the firm. Prerequisites: BADM 1900, MAEC 2140, 2222.

3 credits

BADM 4340 PROTECTIVE LABOR LEGISLATION
Analysis of the federal and state legal frame of Protective Labor Legislation. Constitutional guarantees, laws relative to work contract, antidiscrimination laws, labor insurances and health and occupational security. The articulation of public policy and the solution of labor conflicts in private and the government enterprises. Prerequisite: BADM 3330.

3 credits

BADM 4350 SYNDICATION AND COLLECTIVE BARGAINING
Study of the relations between union and management. Analysis of the legal and practical aspects of syndication, the process of collective bargaining and the administration of the collective agreement between workers and employer unions, in the public and private sectors. Emphasis on compliance with federal and state norms, illicit work practices and the importance of judicial precedents and arbitration in labor conflict resolution in industry and government. Prerequisite: BADM 4340.

3 credits

BADM 4430 WAGE AND SALARY MANAGEMENT
Study of the components of wage systems within their federal and state legal frame. Emphasis on the analysis, description and evaluation of positions, wage and salary management, incentives, fringe benefits, and non-monetary compensation. Prerequisite: BADM 3330.

3 credits

BADM 4800 OPERATIONS MANAGEMENT
Principles and methods of production and operations management. Organization and operation of an industrial enterprise, planning techniques, control management; application of these principles and methods to business activities. Prerequisite: BADM 4300.

3 credits

BADM 4820 BUYING AND MATERIALS MANAGEMENT
Analysis of the purchasing functions as the primary activity in production planning, bargaining and contracting principles. Selection and evaluation of supply sources. Computerized purchasing systems. Prerequisite: BADM 4800.

3 credits

BADM 4915 HUMAN RESOURCES PRACTICUM
Integration of knowledge and skills through experience in any work scenario in the area of human resources supervised by a university professor. Requires 90 hours of practice. Prerequisites: Have passed 21 credits in major courses with a 3.0 average, a general grade index of 2.50 and the authorization of the Department Director.

3 credits

The following courses, although not identified as business administration courses, are offered by that department. These courses are offered only for Associate Degree Candidates.

MAMS 2410 TRANSPORTATION AND TRAFFIC MANAGEMENT
Problems of transporting goods from the production line to the home. Advantages and limitations of transportation methods. The traffic department and the distributive business organization. Prerequisite: MKTG 1210.

3 credits

MAMS 2630 PUBLIC RELATIONS
Current public relations practice and its application to marketing. Organization of public relations work; planning and execution of the public relations program; new developments and trends and their application.

3 credits

Courses in Cardio-Respiratory Care (CARD)

CARD 1210 INTRODUCTION TO THEORY AND PRACTICE IN CARDIO- RESPIRATORY CARE
History, ethical-legal aspects and the standards of the profession of Respiratory Therapy. Basic principles of cardio-respiratory care in clients of different ages. Introduction to the normal cardio-respiratory mechanisms, taking and reporting vital signs and aseptic techniques. Students will develop and apply the necessary skills for the basic evaluation of patients, related to the safe and proper handling of medical gases. Requires 30 hours of lecture and 45 hours of lab. Corequisite: BIOL 1003.

3 credits

CARD 1220 PHARMACOLOGY APPLIED TO CARDIO-RESPIRATORY CARE
Principles of pharmacology, definitions, terms and concepts most commonly used in clinical practice related to the care of critical conditions and to cardio-respiratory care in general. The actions, doses, reactions and contraindications of drugs used in the treatment of cardiopulmonary disorders, as well as the effect in the cardio-respiratory systems are discussed. Prerequisites: GEMA 1000, CARD 1210. Corequisites: CHEM 2110, BIOL 2151, 2154.

2 credits

CARD 2110 CARDIO-RESPIRATORY PATHOPHYSIOLOGY I
Discussion of cardiopulmonary pathophysiology, recognition, diagnosis and handling of the more common pulmonary infections, the pulmonary obstructive disease: COPD, asthma, emphysema and related diseases. Interstitial disease, vascular pulmonary neoplasmas, neuromuscular diseases, and cardiac congestive failure, among others. Discussion of respiratory and cardiac failure and the cardio-respiratory care in each of those conditions. Introduction to the pulmonary function and basic spirometry as a base for subsequent courses. Prerequisites: BIOL 2151, CHEM 2110, CARD 1210, 1220, PHYS 1013. Corequisites: CARD 2120, 2130, 2233, BIOL 2152.

3 credits

CARD 2120 DIAGNOSTIC TESTS AND PULMONARY FUNCTION
This course exposes the student to advanced technology, pulmonary function tests, extraction of arterial blood, analysis of pH and arterial gases in blood, recognition and pharmacological treatment of fatal arrhythmias and electrocardiography. Introduction to the control of infections, maintenance, calibration, basic quality control and regulation for specialized equipment. Requires 15 hours of theory and 45 hours of lab. Prerequisites: CARD 1210, 1220, BIOL 2151.2154 CHEM 2110, PHYS 1013. Corequisites: CARD 2110, 2130, 2233, BIOL 2152.

2 credits

CARD 2130 CARDIO-RESPIRATORY CARE I
This course is designed to provide the student with the opportunity of applying the knowledge and necessary skills for the basic and advanced evaluation of patients requiring pharmacotherapy with aerolized medicines, oxygen, oxygen-helium, nitric oxide, humidity and aerosol in routine situations, as well as in emergency situations with adults and children. Introduction to pulmonary expansion therapy and to incentive spirometry. Requires 30 hours lecture and 45 hours of lab. Prerequisites: CARD 1210, 1220, BIOL 2151, 2154, CHEM 2110, PHYS 1013. Corequisites: CARD 2110, 2120.2233, BIOL 2152.

3 credits

CARD 2140 CARDIO-RESPIRATORY CARE CLINICS AND REHABILITATION
Clinical community experience of clients with chronic cardio-respiratory conditions. Topics include: the development, implementation and provision of services of respiratory care in the home. Examination of risk factors that may affect the community. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: CARD 2120, 2130, 2233, BIOL 2152. Corequisites: CARD 2111, 2131, 2190, 2910.

3 credits

CARD 2111 CARDIO-RESPIRATORY PATHOPHYSIOLOGY II
Discussion of the cardio-pulmonary pathophysiology of the following conditions: pneumotorax, hemotorax pleural effusion bronchopleural fistules, syndrome of acute respiratory insufficiency (Acute Respiratory Distress syndrome, ARDS) and the syndrome of acute pulmonary injury (Acute Lung Injury, ALI), among others. Technical concepts of the areas of critical care of the adult and neonatal client. Cardio-respiratory care is emphasized in each of these conditions. Prerequisites: 2110, 2120, 2130. Corequisites: CARD 2131, 2140, 2190, 2233, 2910.

3 credits

CARD 2131 CARDIO-RESPIRATORY CARE II
Course directed to enable students in the advanced aspects of the respiratory care. Handling of the critically ill will be emphasized. Students will be exposed to the basic and advanced techniques in the management of the natural and artificial aerial routes, pulmonary fisiotherapy, bronchial therapy bronchial hygiene, resucitation in infants, children and adults, and the technology used in the care of cardio-respiratory cases. Requires 30 hours of lecture and 45 of lab. Prerequisites: CARD 1210, 2120, 2130, 2233, BIOL 2152,2154. Corequisites: CARD 2111, 2140, 2190, 2910.

3 credits

CARD 2190 PREPARATION FOR LOCAL AND NATIONAL BOARD EXAMS
The course is designed to prepare the students to successful pass the local examinations of Puerto Rico in Spanish and the national exams in English: Entry Level (CRT) Advanced Level (RRT). Prerequisites: CARD 2110, 2120, 2130, 2233. Corequisites: CARD 2111, 2131, 2140, 2910.

2 credits

CARD 2233 MECHANICAL VENTILATION
Course directed to enable students in the advanced aspects of respiratory care. Specifically, in the basic and advanced principles of mechanical ventilation in children and adults. Requires 45 hours of theory and 90 hours of lab. Prerequisites: BIOL 2151, 2154, CHEM 2110, PHYS 1013, CARD 1220. Corequisites: CARD 2110, 2120, 2130.

5 credits

CARD 2910 INTEGRATED PRACTICE I
Students will intervene with patients in different health scenarios. Emphasis on patients in the areas of medicine, surgery, pediatrics and emergency room. Requires 180 hours of lab. Prerequisites: CARD 1210, 2120.2130, 2233, BIOL 2152, 2154. Corequisites: CARD 2111, 2131, 2140, 2190.

4 credits

CARD 3120 PRINCIPLES OF RESEARCH IN CARDIO-RESPIRATORY CARE
The course is based on the knowledge and development of skills used to search for, select read, interpret and evaluate research reports and to determine their application to clinical practice. It aims to familiarize the student with the basic concepts of research using the scientific method, and the skills necessary to conduct research successfully. Prerequisites: possess an Associate Degree in Cardio- Respiratory Care. Corequisite: CARD 3130.

2 credits

CARD 3130 ADVANCED MEASURES OF CARDIOPULMONARY RESUCITATION AND ELECTROCARDIOGRAPHY
The course is based on the Manual of Advanced Cardiopulmonary Resuscitation of the American Heart Association, contributing to enable the student in the recognition and handling of patients in critical conditions requiring advanced measures of resuscitation, in the coronary intensive room as well as in the emergency room. Includes electrocardiography principles and skills. Requires 30 hours of lecture and 90 hours of lab. Prerequisite: Associate Degree in Cardio-Respiratory Care. Corequisite: CARD 3120.

4 credits

CARD 3230 LEADERSHIP AND ADMINISTRATION IN CARDIO-RESPIRATORY CARE
Study of the principles of administration and leadership, and the medical, administrative and technical management of the services of respiratory care in a hospital. Discussion of the methods used for the continuous improvement of

the quality, and the development and implementation of protocols to help improve respiratory care. The new models in services offered, cost effectiveness, handling of diseases and medicine based on evidence are examined. State and federal laws related to health services, regulations and related policies of accrediting agencies of hospitals and other related organizations are discussed. Prerequisites: CARD 3120, 3130.

3 credits

CARD 4910 INTEGRATED PRACTICE II
Students will intervene with patients in different health scenarios. Emphasis on patients in continuous mechanical ventilation in critical care units: intensive and coronary care and emergency rooms. Clinical practice based on the basic and advanced detailed content of the NBRC Combined Detailed Content Outline matrix and the Entry Level (CRT) and Advanced Level (RRT) national examinations. Requires 180 hours of lab. Prerequisite: CARD 3230. Corequisites: CARD 4920, 4970.

4 credits

CARD 4920 CARDIO-RESPIRATORY CARE IN NEONATOLOGY AND PEDIATRICS
The course is designed so that the student intervenes with patients in the areas of intensive neonatology and Pediatrics. The prenatal and neonatal evaluation, the performance of the different diagnostic tests, treatment, mechanical ventilation and cardiopulmonary resucitación, considering the pulmonary structure of new-born baby are discussed. Requires 30 hours of lecture and 90 hours of lab. Prerequisite: CARD 3230. Corequisites: CARD 4910, 4970.

4 credits

CARD 4930 ADVANCED CARDIO-RESPIRATORY CARE
Intensive practice integrating knowledge and skills in the cardio-respiratory care of adults in areas of: Intensive Surgery, Medicine, Coronary, Muldisciplinary and Emergency Room. The student will be exposed to specialized techniques to evaluate gas exchange and when this is indicated and how to obtain, process and analyze arterial and venous gases. Students will also be exposed to situations of when and how to execute transcutaneous gas evaluations, capnography and capnometry, oximetry, indirect calorimetric and oxygen analysis. Procedures of analysis, calibration, quality control and proficiencies according to requirements of the Department of Health, CLIA, and other hospital accrediting agencies. The measures of advanced cardiorespiratory diagnosis will be studied so that the student may evaluate median and critically ill patients. Requires 30 hours of lecture and 90 hours of lab. Prerequisites: CARD 4910, 4920, 4970.

4 credits

CARD 4970 SEMINAR
The course focuses on the use and evaluation of equipment and procedure used in the diagnosis and therapeutic handling of patients with disease and cardiopulmonary conditions. This includes the hemodynamic monitoring and other invasive and noninvasive procedures. Prerequisite: CARD 3230. Corequisites: CARD 4920, 4910.

2 credits

Courses in Chemistry and Chemical Technology (CHEM)

CHEM 1111 GENERAL CHEMISTRY I
Study of matter, its relationship with energy, its properties and its behavior from a macroscopic and microscopic qualitative approach. Formulation of basic concepts of chemistry through laboratory experience. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: GEMA 1200.

4 credits

CHEM 2110 GENERAL CHEMISTRY FOR HEALTH SCIENCES
Theoretical and practical study of the fundamental principles of the structure and behavior of matter, with emphasis on the state of organic molecules of biological importance and their metabolic reactions. Practice of analysis techniques will be emphasized in the laboratory. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: GEMA 1000.

4 credits

CHEM 2115 GENERAL CHEMISTRY FOR ENGINEERS
Chemistry concepts and applications, relative to: experimental measurements, atomic and molecular theories; thermodynamics; properties of gases, kinetic molecular theory; liquid and solid states, their intermolecular forces; colligative forces and properties. Aqueous-media reactions: reduction/oxidation (red-ox), precipitation, acid-base combination. Requires 45 hours of lecture and 45 hours of lab. Not to be taken for credit by biology or chemistry majors. Prerequisite: MATH 1500.

4 credits

CHEM 2212 GENERAL CHEMISTRY II
Fundamental principles of chemistry and its applications with emphasis on the quantitative study of the structural and energetic properties associated with matter and its transformations. Includes topics related to solid and liquid states, solutions, thermodynamics, chemical kinetics, equilibrium and electrochemistry among others. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: CHEM 1111, MATH 1500.

4 credits

CHEM 2221 ORGANIC CHEMISTRY I
Theoretical and experimental study of the physical, chemical and spectroscopic traits of organic compounds. Emphasis on nomenclature, isomerism, synthesis and reactions of hydrocarbons, alcohols, halogenuros of alkyl and aromatic compounds. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: CHEM 1111.

4 credits

CHEM 2222 ORGANIC CHEMISTRY II
Theoretical and experimental study of organic compounds. Emphasis on spectroscopy, nomenclature, isomerism, synthesis and reactions including mechanisms of ethers, organometallic, carbonílicos and carboxylic, compounds amines and composed of biological interest. It includes in addition, the study of the cicloadición Diels-Alder according to the with the frontier orbital theory. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: CHEM 2221.

4 credits

CHEM 2223 DEVELOPMENT AND APPLICATION OF DIDACTIC MATERIALS IN CHEMISTRY
Development of instructional materials, such as: simple laboratory equipment and chemistry-physical models. Application of these materials as educational tools in the classroom. Requires 45 hours of lecture/lab. Prerequisite: CHEM 2222.

3 credits

CHEM 3000 ENVIRONMENTAL CHEMISTRY
Environmental contamination and conservation with emphasis on the chemical, biological and physical processes involved. Prerequisite: CHEM 2212.

3 credits

CHEM 3010 ENVIRONMENTAL CHEMICAL ANALYSIS
Laboratory techniques for the analysis of water, soil and air. Methods commonly used in field and laboratory sampling and analysis. Description of the most recent technology for analysis and restoration. Requires 30 hours of lecture and 45 hours of lab. Not to be taken for credit by majors in chemistry and chemical technology. Prerequisite: CHEM 2212.

3 credits

CHEM 3015 ENVIRONMENTAL ANALYTICAL CHEMISTRY
Practice in methods of chemical analyses for components and polluting agents of soil, natural and industrial waters and of air. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: CHEM 2212.

4 credits

CHEM 3140 PETROCHEMISTRY
Conversion of petroleum into useful products with emphasis on the chemical processes involved. Prerequisite: CHEM 3320.

3 credits

CHEM 3180 CHEMICAL LITERATURE AND INFORMATION RETRIEVAL
Training in the use of chemical literature. Development of bibliographic search strategies in primary and secondary sources of information through manual and computerized techniques. Practical applications and use of principal bibliographic sources. Prerequisite: CHEM 2221.

1 credit

CHEM 3230 STRUCTURE DETERMINATION BY SPECTROSCOPIC ANALYSIS
Analysis of the information obtained from the main spectroscopic methods (Infrared, Nuclear magnetic resonance uni-y multidimensional, Masses and Ultraviolet) to determine the molecular structure of chemical compound. Prerequisites: CHEM 2212, 2222.

3 credits

CHEM 3320 ANALYTICAL CHEMISTRY
Study, statistical treatment and applications of quantitative analysis. Emphasis on volumetric, gravimetric and electroanalíticos methods. Includes, in addition, the fundamentals and the basic applications of the methods of spectroscopic analyzes and separation. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: CHEM 2212.

4 credits

CHEM 3330 COMPUTATION AND CHEMICAL APPLICATIONS
Use and handling of the computer in the field of chemistry, directed to the solution of problems, writing of technical reports and the search, access and handling of information on macromolecules. Emphasis on programming in a basic language, the use of sensors and use of computerized programs in the solution of problems and experiments in chemistry, including the study of macromolecules. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: CHEM 2221, MATH 1500.

3 credits

CHEM 3350 PHARMACEUTICAL CHEMISTRY
Biochemical processes and the manufacture of industrial pharmaceutical products. Prerequisite: CHEM 3320.

3 credits

CHEM 3351 LABORATORY OF PHARMACEUTICAL CHEMISTRY
Techniques for manipulating and analyzing pharmaceutical products in a practice scenario. Requires 45 hours of lab.

1 credit

CHEM 3360 FOOD CHEMISTRY
Study and state of dispersion of the components of foods: water, carbohydrates, proteins, lipids, enzymes, inorganic nutrients and those responsible for color and flavor. Study of the toxicology of compounds inherent to foods and those that are generated by means of their processing. Prerequisite: CHEM 2222.

3 credits

CHEM 3370 GREEN CHEMISTRY
Introductory study of the basic chemical concepts and methods focused on process design and product synthesis that impacts the environment in a benign way. Includes the discussion and analysis of principles and the historical development of green chemistry, evaluating advantages and disadvantages. Analysis of examples of the application of green chemistry, at the academic and industrial levels by evaluating its economic and environmental impact. Prerequisites: CHEM 2222, 3320.

3 credits

CHEM 3380 INTRODUCTION TO NANOTECNOLOGÍA
Theoretical analysis among the physical, chemical and structural characteristics of materials on a nanometric scale based on the differences between their properties and those of the materials of greater volume. Study of the formation and manipulation of nanotecnológicos materials. Includes applications in medicine, technology and the power sector. Prerequisites: CHEM 2222, 3320.

3 credits

CHEM 3390 BIOTECHNOLOGY FOR CHEMISTS
Analysis of the fundamental concepts and the basic principles on the chemical manipulation of the nucleic acids with emphasis on the recombinant techniques of Ácido Desoxirribonucleico (ADN). Discussion of the biotechnological applications to systems of genetic expression, protein modification, industrial processes and biorremediación. Prerequisites: CHEM 2222, 3320, BIOL 1101.

3 credits

CHEM 3910 PHYSICAL CHEMISTRY: THERMODYNAMICS
Theoretical and experimental study of the basic physical principles governing the properties and behavior of chemical systems with emphasis on the microscopic aspect. Includes thermodynamics and its applications to phase equilibrium and chemical equilibrium: non-ideal systems, real gases and solutions and electrochemistry. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: PHYS 3002, MATH 2252, CHEM 3320, CHEM 3330.

4 credits

CHEM 3920 PHYSICAL CHEMISTRY: QUANTUM AND KINETIC
Theoretical and experimental study of basic physical principles governing the properties and behavior of chemical systems with emphasis on the microscopic aspect. Includes quantum mechanics and its application to the atomic and molecular structure, spectroscopy, and chemical kinetics. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: PHYS 3002, CHEM 2222, 3320, 3330, MATH 2252.

4 credits

CHEM 3955 CHEMICAL SYNTHESIS
Synthesis of chemical compounds and their characterization by instrumental methods. Emphasis on the application of spectroscopic methods and multistep synthesis. Requires 60 hours of lab. Prerequisites: CHEM 3230, 3320.

2 credits

CHEM 397_ SPECIAL TOPICS
Analysis and discussion of specific topics in chemistry.

3 credits

CHEM 4003 INDUSTRIAL CHEMISTRY
Introduction to the chemical industry and its economic aspects; industrial processes emphasizing the application of chemical principles to the development of commercial products. Prerequisites: CHEM 2222, 3320.

3 credits

CHEM 4070 GENERAL INORGANIC CHEMISTRY
Structures and reactions of inorganic compounds. Course designed for secondary school teachers. Prerequisite: CHEM 3320.

3 credits

CHEM 4160 INDUSTRIAL CHEMICAL ANALYSIS
Application of standard methods of sample analysis, emphasizing instrumental procedures (optical spectroscopic and electrochemical methods) used in industrial chemical analysis. Designed for students in chemical technology. Requires 45 hours of lecture and 75 hours of closed lab. Prerequisites: CHEM 2222, 3320.

5 credits

CHEM 4180 ADVANCED ORGANIC CHEMISTRY
Mechanical, synthetic and stereochemical aspects of carbonations reactions, additions to multiple chains, reductions, oxidations, and pericyclic reactions. Emphasis on the retrosynthesis of compounds with optical activity. Prerequisite: CHEM 2222, 3230.

3 credits

CHEM 4200 ADVANCED INORGANIC CHEMISTRY
Study of the reactions, properties and applications of inorganic and coordination compounds. Analysis of the theories of valence bond, molecular orbitals and crystalline field. Solid state, symmetry and their applications. Prerequisite: CHEM 3920.

3 credits

CHEM 4220 BIOCHEMISTRY
Chemical reactions occurring in living matter, using modern techniques for the analysis of carbohydrates, lipids, proteins, nucleolar acids hormones and minerals. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: CHEM 2222, 3320.

4 credits

CHEM 4240 INSTRUMENTAL ANALYTICAL CHEMISTRY
Study of the components, foundations and applications of standard used instrumentation for separation, identification and quantitative analyzes of chemical substances. Includes spectroscopic and electrochemistry techniques of separation. Emphasis on the methods of optimization, calibration and validation commonly used in instrumental analysis. Discussion of the strengths and limitations of the different analysis methods and techniques. Requires 45 hours of lecture and 75 hours of closed lab. Prerequisites: CHEM 3230, 3320, 3330.

5 credits

CHEM 4650 CHEMICAL KINETICS
Kinetics of homogeneous reactions, theoretical kinetics, methods of determining order, reactions of simple order, compound reactions, complex reactions and reactions in solution. Photochemistry and homogeneous and heterogeneous catalysis. Prerequisites: CHEM 2222, MATH 2251.

3 credits

CHEM 4850 PROCESS VALIDATION
Basic concepts of methodology and applications in the validation process, which is defined as documented evidence constantly generated by a process or procedure in the elaboration of a product or in carrying out a function that meets previously determined specifications. Prerequisites: CHEM 3350, MATH 2252.

3 credits

CHEM 4910 INDUSTRIAL PRACTICE
Practical experience in an industrial chemical laboratory under the supervision of program staff and industrial personnel. Requires 120 hours. Prerequisites: CHEM 3230, 3320, 3330.

3 credits

CHEM 4913 INTERNSHIP IN CHEMICAL TECHNOLOGY
One hundred twenty hours of practical experience in an industrial chemical laboratory under the supervision of program staff and industrial personnel. Prerequisites: CHEM 2222, 4160.

3 credits

CHEM 4915 PRACTICE IN INDUSTRIAL CHEMISTRY
One hundred and twenty hours of practice work in an industrial chemical laboratory under the supervision of the industry and program personnel. Prerequisites: CHEM 4003, 4160.

3 credits

CHEM 4950 RESEARCH METHODS
Training in chemical research through the development of a specific project, using modern techniques. Prerequisites: CHEM 2222, 3320, 3330.

3-6 credits

CHEM 4965 SENIOR SEMINAR
Integration of the knowledge and skills acquired in the major courses. Iintegration of bibliographical search strategies. Effective use of the information and chemical literature in case analysis and the research of current subjects of interest. Requires the presentation of oral and written works. Prerequisite: Have approved 36 credits in chemistry courses.

3 credits

Courses in Communications (COMU)

COMU 1000 INTRODUCTION TO COMMUNICATIONS
Current theories of interpersonal group communication and mass communication. Analysis of the importance of communication in society.

3 credits

COMU 1005 INTRODUCTION TO EDUCATIONAL TECHNOLOGY
Introduction to the concepts and fundamentals of Educational Technology. Application and integration of the concepts and tools used in the production of instructional materials. Requires 30 hours of lecture and 30 hours of lab.

3 credits

COMU 1010 FUNDAMENTALS OF GRAPHIC COMMUNICATION
Theories and practices in graphic design for effective communication, introduction to the different visual communication media with emphasis on their adequate use and on related terminology. Requires 30 hours of lecture and 30 hours of lab.

3 credits

COMU 1020 INTRODUCTION TO COMMUNICATION MEDIA
Study and analysis of the history and development of mass media. Emphasis on the processes of communication, the evolution of the media with the arrival of new technologies and their impact on society.

3 credits

COMU 1025 INTRODUCTION TO GRAPHIC PRODUCTION
Study and application of the concepts and the basic techniques governing the graphic design industry. Introduction to the programs most used in graphic design. Requires 30 hours of lecture and 30 hours of lab.

3 credits

COMU 1031 PHOTOGRAPHIC TECHNIQUES
Theory and skills of visual communication in basic photography. Emphasis on the use and handling of the camera. Requires 30 hours of lecture and 30 hours of lab. Requires the approval of the Director of the Department.

3 credits

COMU 1032 ADVANCED PHOTOGRAPHIC TECHNIQUES
Theory and practice in the most specialized techniques in the art of photography. The student will perfect the techniques of illumination, advanced techniques in the photographic studio and development of the concept of photographic creation. The student will, also, become acquainted with the necessary materials and equipment for achieving art studio photography. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMU 1031.

3 credits

COMU 1060 ADMINISTRATION OF EDUCATIONAL TECHNOLOGY CENTERS
Study of the administration theories that govern the management for Educational Technology Centers. Discussion and analysis of the processes used in the systematization of services and the production of instructional materials. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 1005.

3 credits

COMU 2000 FUNDAMENTALS OF JOURNALISM
The history, theory and practice of journalism; the responsibility of the journalist to society, the ethics of journalism.

3 credits

COMU 2010 WRITING FOR THE MEDIA
Writing fundamentals, techniques, skills, styles and formats for the media. Press releases, editorials, speeches, special computerized programs, advertising messages and audience analyses. Requires additional time in an open lab. Prerequisite: GEEN 2203.

3 credits

COMU 2030 FUNDAMENTALS OF PUBLIC RELATIONS AND ADVERTISING
The history, theories and practice of public relations and advertising in businesses. Analysis of their evolution and impact on society, communication media and marketing. Evaluation of the effectiveness of communication media. Prerequisite: COMU 1000.

3 credits

COMU 2040 INTRODUCTION TO THE ANALYSIS OF JOURNALISTIC TEXTS
Analysis of the use and function of language in journalistic texts; basic techniques in the analysis of text with an emphasis on the development of one's own style. Prerequisite: COMU 2000.

3 credits

COMU 2121 MEDIA WRITING I
Study and application of the foundations and techniques used in the writing of the different script formats for the production of radio and television programs. Emphasis on the study of the terminology, the formats and the development of creative skills. Requires 30 hours of lecture and 30 hours of lab.

3 credits

COMU 2122 MEDIA WRITING II
Study and application of the theoretical foundations and the basic techniques used for informative purposes. Emphasis on the analysis and writing of the informative note in accordance with the goals and the media in which it is issued or published. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2121.

3 credits

COMU 2130 MEDIA PLANNING
Theory and practice of the processes related to media production. Study and analysis of the production stages: pre-production, production and post-production. Emphasis on the design of proposals to produce concepts. Prerequisites: COMU 1020, 2121.

3 credits

COMU 2223 SOUND PRODUCTION TECHNIQUES
Study of the nature of sound and its behavior. Analysis of how sound is produced , travels and becomes different forms of energy. Theory and practice of the basic concepts and tools that are used in sound production. Requires 30 hours of lecture and 30 hours of lab.

3 credits

COMU 2340 TELEVISION PRODUCTION TECHNIQUES
Integration of the theory and practice of the techniques and the principles that govern television production Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: COMU 1031, 2130, 2223.

3 credits

COMU 2511 COMPUTER GRAPHIC PRODUCTION I
Application of the concepts and techniques governing graphic production using the main design programs in the market. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: COMU 1025, GEIC 1010.

3 credits

COMU 2512 GRAPHIC PRODUCTION IN COMPUTER II
Application of advanced techniques in graphic production Analysis and application of the new market design trends. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2511.

3 credits

COMU 2521 VOICE AND DICTION
Theory and practice of news casting techniques Emphasis on news commenting, commercials and radio and television documentaries in order to develop better voice control and projection. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2223.

3 credits

COMU 2522 ADVANCED RADIO NEWSCASTING
Integration of the theory and practice of the techniques associated with the radio news casting profession. Emphasis on advanced skills of ad-libbing and on the creation of a professional demonstration. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2521.

3 credits

COMU 2610 THEORY AND TECHNIQUES OF ILLUMINATION IN PHOTOGRAPHY
Study of illumination theories for photography with emphasis on the psychological and physical effects that light produces in human perception. Emphasis on techniques for the use and manipulation of natural as well as artificial environmental light, in addition to the appropriate use and handling of equipment used to illuminate photographic scenes. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: COMU 1031, 1032.

3 credits

COMU 2611 RADIO PRODUCTION I
Theory and practice of the techniques and the basic principles that govern production for the radio. Emphasis on the development of concepts, design of proposals and production of simple types of radio programming. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: COMU 2121, 2223, 2521.

3 credits

COMU 2612 PRODUCTION FOR RADIO II
Theory and practice of principles and advanced techniques that control different types of radio program production. Emphasis on the development of concepts, proposal design and production of advanced genres for radio production. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: COMU 2611.

3 credits

COMU 2621 DIGITAL PHOTOGRAPHY I
Study of the difference between digital and traditional photography. Application of the basic concepts of composition and edition of digital images. Practice in the use and handling of the digital camera, storage, processing and printing of digital photos. Requires 30 hours of lecture; 30 hours of closed lab. Prerequisites: COMU 1031, 2511.

3 credits

COMU 2622 DIGITAL PHOTOGRAPHY II
Study and application of advanced techniques for photographic digitalization. Practice in the use and handling of equipment and software by combining techniques and creativity. Requires 30 hours of lecture; 30 hours of closed lab. Prerequisite: COMU 2621.

3 credits

COMU 2910 SUPERVISED PRACTICE
Practical work experience in an Educational Technology Center. Students must have passed 28 credits in COMU courses with a minimum grade of C. Requires a minimum of 100 hours of practice during the academic term and attendance once per week at lectures coordinated by the practice advisor. Prerequisite: Approval of the Department Director.

4 credits

COMU 2915 SUPERVISED PRACTICE
Practical experience in a real work environment in the area of photography. All major courses must have been passed with a minimum grade of C and students must have completed 21 credits in COMU courses. Requires a minimum of 100 hours of practice during the academic term in addition to 30 hours of lecture coordinated by the practice advisor. Prerequisite: Approval of the Department Director.

4 credits

COMU 3000 RESEARCH PROCESSES IN COMMUNICATIONS
Analysis of the processes, techniques and available resources for conducting a research project including the selection and development of a current topic.

3 credits

COMU 3010 WRITING FOR JOURNALISTIC COMMUNICATION
Development of journalistic writing skills with an emphasis on legibility, clarity, fluid style, creativity and adequate use of language. Prerequisites: COMU 2000, GEEN 2203.

3 credits

COMU 3013 PUBLIC RELATIONS PLAN
Study and analysis of the necessary processes for implementing a public relations plan. Discussion of the research process, objectives, strategies, cost plan, selection of communication media, implementation of program and its evaluation. Analysis and discussion of cases related with public relations programs.

3 credits

COMU 3015 ADVERTISING PROJECTS
Planning, preparation and implementation of advertising campaigns. Emphasis on the creation and composition of advertising messages, market research, of goods and services, audience analysis, position of advertising cost, evaluation of effectiveness and campaign control. Study and analysis of advertising cases.

3 credits

COMU 3020 INTERPERSONAL COMMUNICATION: TECHNIQUES AND STYLE
Presentation, analysis and utilization of strategies for the development of assertiveness; techniques for initiating and maintaining communication in journalistic situations.

3 credits

COMU 3021 TELEVISION AND RADIO PRODUCTION
Television and radio production, libretto preparation, techniques used in electronic media. Prerequisite: COMU 2010.

3 credits

COMU 3030 PRODUCTION OF RESEARCH REPORTS
The process of producing research reports that include analysis of the audience, selection of topics, collection of data and writing for different media. Prerequisites: COMU 2010, 3020.

3 credits

COMU 3040 TELEVISION FIELD PRODUCTION
Application of the principles and the techniques that govern television field production Practice in the design of concepts, use and handling of equipment used for exterior video films, and the process of digital edition for the production of concepts. Requires 30 hours of lecture and 60 hours of lab. Prerequisite: COMU 2340.

4 credits

COMU 3130 ADVERTIZING GRAPHIC DESIGN
Study of publicity from the graphic design point of view. Analysis of the components included in the advertising campaigns. Emphasis on the development and manipulation of images and texts used to create effective advertising campaigns. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2512.

3 credits

COMU 3325 PHOTOJOURNALISM
The use of photography to document events in written and electronic media. Requires 30 hours of lecture and 30 of lab. Prerequisites: COMU 1031, 2621.

3 credits

COMU 3341 JOURNALISTIC TECHNIQUES AND STRUCTURE I
Study and application of the journalistic genre with emphasis on the news coverage and writing of news articles, chronicles and editorials for the written press: newspapers and magazines. Exploration of the different methods to obtain information as well as the formats for informative writing. Analysis of journalistic communication and its impact on public opinion. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2122.

3 credits

COMU 3342 TECHNIQUES AND JOURNALISTIC STRUCTURE II: ELECTRONIC MEDIA
Study and practice of the basic concepts of the news with emphasis on the writing of journalistic facts for electronic media: television, radio and Internet. Study of the different methods to obtain information and different formats for news editing. Analysis of the characteristics of the journalistic note according to the media in which it is issued or published. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: COMU 3341.

3 credits

COMU 3355 MEDIA INTERVIEWS
Study of the different formats of media interviews for the media and the importance of establishing an effective relation between the interviewer and the interviewed person. Analysis of persuasive strategies to be used for an effective interview. Application of basic concepts in the development, the administration and the publication or issuance of interviews. Evaluation of interviews in agreement with their informative purpose and the media in which they will be distributed. Prerequisite: COMU 2122.

3 credits

COMU 3410 PRODUCTION OF NEWS FOR ELECTRONIC MEDIA
Application of the concepts and theory related to the drafting and production of news for electronic media: radio, television and Internet. Emphasis on the writing of the news, the production of news reports and the evaluation of their effectiveness when transmitting the information. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: COMU 2611, 3040, 3342.

3 credits

COMU 3435 ILLUMINATION FOR VIDEO
Application of specialized techniques in the design of interior as well as exterior lighting for video. Emphasis on advanced lighting skills, conceptualization of foreground and background lighting, assembly of lighting areas and diagnosis of video quality. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: COMU 3040.

3 credits

COMU 3520 ADVANCED TELEVISION PRODUCTION
Application of advanced techniques in the production of television in the studio. The student will practice skills in planning, writing, production of video and sound, and graphic design for the development of complex programs. Emphasis on the functions of the production team and on the use and management of the equipment used during television production in the studio. Requires 30 hours of lecture and 60 hours of lab. Prerequisites COMU 2611, 3040.

4 credits

COMU 4320 LEGAL AND ETHICAL ASPECTS OF COMMUNICATION
Study of the laws and the federal and state jurisprudence on ethical and legal problems that are relevant to the communication professions. Analysis of the codes of ethics relative to the communication professions along with the extension and limitations of freedom of expression. Prerequisite: Have passed 40 credits leading to the academic degree.

3 credits

COMU 4410 MEDIA MANAGEMENT
Study of the administration theories that govern the management for massive mass media, as well as its organization and operation. Discussion and analysis of managerial problems which these media face and possible ways to solve them. Prerequisite: Have passed 40 credits leading to the academic degree.

3 credits

COMU 4444 FUNDAMENTALS OF MEDIA RESEARCH
Media research processes and techniques in the field of communications. Application of basic techniques of scientific-social research using interpersonal, group and massive media communication topics. Familiarization with research designs, sampling, the instruments for data collection, interpretation and the application of results. Planning and development of a research topic. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: MAEC 2221 and have passed 75 credits leading to the academic degree.

3 credits

COMU 4510 MANAGEMENT OF RADIO STATIONS
Study of the administrative and organizational aspects in radio stations. Analysis of the functions performed by the officials, emphasis on the administration of airtime, programming strategies and the organization of the radio business. Prerequisite: COMU 4410.

3 credits

COMU 4910 SUPERVISED PRACTICE (BACHELOR'S DEGREE)
Experience in a real work environment in an institution approved by the Department. It is necessary to have passed all the courses of the specialization with a minimum grade of C and have passed 60 credits in COMU courses. A minimum of 200 hours of practice is required during the academic term, besides attending lectures once a week coordinated by the practice advisor. Prerequisite: Approval of the Department Director.

4 credits

COMU 4920 INTERNSHIP
Application of theoretical knowledge to real situations in an organizational context; practice in real scenarios in the world of work. Prerequisites: Have approved 18 credits in specific course requirements and have approved all specialization courses with a grade point index of at least 2.50 and a general grade index of at least 2.00. Students are required to devote at least 225 hours to the internship and to attend several internship seminars.

6 credits

COMU 4970 SEMINAR IN JOURNALISM
Current topics in the area of journalism. Analysis of specific cases. Students must devote a minimum of 20 hours as observers in a real journalism work scenario or its equivalent. Prerequisite: Have approved 18 credits in the journalism specialization.

3 credits

COMU 4973 SEMINAR IN PUBLIC RELATIONS AND ADVERTISING
Current topics in the field of public relations and advertising. Analysis of specific cases. Students must devote a minimum of 20 hours per in a real public relations or advertising work scenario or its equivalent. Prerequisites: Have approved 18 credits in the public relations and advertising specialization.

3 credits

COMU 4975 SEMINAR ON RADIO PRODUCTION ON LINE
Application of appropriate operational processes and production of a radio transmitter through Internet in a real work context. Includes writing for the media, the manipulation of sound, locution and the production for the radio in the operation of an on line radio transmitter. Prerequisites: COMU 2522, 2612

3 credits

Courses in Computer Engineering (COEN)

COEN 2210 INTRODUCTION TO PROGRAMMING
Introduction to problem solving using the computer programming. Development of students' programming abilities and improvement of their efficiency in the application of computer concepts to their field of study. Emphasis on data types, functions, control structure, and basic data structures. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: MATH 1500, GEIC 1010.

4 credits

COEN 2220 ADVANCED PROGRAMMING
Application of advanced programming techniques in solving engineering problem. Emphasis on the use of sub-programming, object-oriented programming and data structures for data collection, distribution, storage and sorting. Requires 45 hours of lecture and 30 of closed lab. Prerequisite: COEN 2210.

4 credits

COEN 2310 DISCRETE MATHEMATICS FOR COMPUTER ENGINEERING
Study of forms and logical equivalences, circuits and their simplification, Boolean algebra, numerical systems, combinations, and substitutions. Emphasis on propositional logic. Includes the deductive process and rules of inference. Functions, Graph Theory and trees, difference equations of, vectors and linear transformations. Requires additional time in an open lab. Prerequisite: COEN 2220.

3 credits

COEN 3410 SOFTWARE DESIGN AND CONSTRUCTION
Application of the software development cycle: analysis, design, testing, documentation and maintenance. Use of effective practices for software construction with emphasis on planning, the elimination of errors, design focused on the user, the design focused on interaction with hardware and quality assurance. Requires additional time in an open lab. Prerequisite: COEN 2220.

3 credits

COEN 3510 OPERATING SYSTEMS
Design and implementation of fundamental concepts of operating systems with emphasis on hardware. Management of processor, memory, resources and file system. Analysis of installation, administration and security concepts in operating systems. Requires 45 hours of lecture and 30 hours of closed lab. Prerequisite: COEN 2220.

4 credits

COEN 4412 DESIGN OF USER INTERFACE AND PROTOTYPES
Design, implementation and evaluation of graphical interfaces. Techniques and methods focused on the Human-Computer Interaction and Usability Engineering. Development of skills and strategies for the design of systems focused on the user. Study of the users' experience levels and interaction styles. Knowledge and development of different types of prototypes using the techniques learned. Requires 45 hours of lecture and 30 hours of closed lab. Prerequisite: COEN 3410.

4 credits

COEN 4413 DESIGN OF EXPERT SYSTEMS
Expert system application with emphasis on the field of engineering. Acquisition and representation of knowledge, inference motor, reasoning strategies, hybrid expert systems. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: COEN 3410, 4510.

4 credits

COEN 4420 COMPUTERIZED INFORMATION SYSTEMS DESIGN
Analysis and design of information systems. Design of databases. Emphasis on logical models of data and on relational database management systems. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: COEN 3410.

4 credits

COEN 4510 COMPUTER ARCHITECTURE
Analysis of computer organization and architecture. Emphasis on the set of instructions, addressing modes, memory, interruptions, registries and structure of the processing unit. Development of programs in assembly language. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: ELEN 3320 and COEN 2220.

4 credits

COEN 4530 DESIGN AND CONSTRUCTION OF COMPILERS
Analysis and application of the design and construction of compilers: lexicon, robot, parsing techniques, grammar free of context, tables of symbols, syntax directed translations and other related topics. Requires 45 hours of lecture and 45 hours in a closed lab. Prerequisite: COEN 3510.

4 credits

COEN 4535 INTEGRATED COMPUTER SYSTEMS
Integrated systems analysis and design. Emphasis on architecture and systems programming based on communication and interface between different hardware and computers devices. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: ELEN 4010, 4410**.**

4 credits

COEN 4540 PARALLEL COMPUTATION DESIGN
Design of computer programming in parallel and distributed. Emphasis on multiprocessing, parallel programming. Includes interconnection, communication and systems synchronization. Paradigms and models in parallel. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: COEN 4510.

4 credits

COEN 4910 PRACTICUM IN COMPUTER ENGINEERING
Practical experience in computer engineering with private industry or the government, supervised by a coordinator. Preparation of a comprehensive report based on real job experience in the field of computer engineering under the supervision of a faculty member. Requires a minimum of 160 work hours. Prerequisites: Authorization of the department director.

4 credits

Courses in Computer Science (COMP)

COMP 1010 INTERNET AND ITS TECHNOLOGIES
History of Internet. Terminology used in Internet. Components for telecommunication between computers. Characteristics and operations of browsers. Use of search engines. Management of files through Internet. Use of e-mail. Design of simple web pages using applications. Connections to Internet through applications such as word processors, electronic spreadsheets, or presentation applications. Closed laboratory.

3 credits

COMP 2015 WEB PAGE DESIGN
Discussion of concepts and strategies for the analysis and design of sites and pages used through Internet. Analysis, design, and programming of interactive pages using code generators for HTML, DHTML and JavaScript. Includes design and adaptation of graphical elements and multimedia for interactive pages. Emphasis on design principles and integration of visual elements that use vectorial animation. Closed laboratory. Requires additional time in an open laboratory. Prerequisite: COMP 1010.

3 credits

COMP 2060 MICROCOMPUTER REPAIR AND MAINTENANCE
Physical and peripheral components of computer systems. Comparative study of different technologies used in the components of computer systems. Installation of application programs. Preventive maintenance of the equipment, hardware configuration and installation of personal computers. Diagnosis and solution of problems related to the operation of hardware. Computer updating. Requires 30 hours of lecture and 30 hours of closed lab.

3 credits

COMP 2110 INTRODUCTION TO COMPUTER SCIENCE
Analysis of numerical systems and representation of data, formulation and evaluation of logical functions, arithmetical and logical expressions. Includes an introduction to circuit logic and the basic areas of computer sciences, such as: programming languages, operating systems and data bases. Requires additional time in an open laboratory. Corequisite GEIC 1010, if it has not been approved previously.

3 credits

COMP 2120 PROGRAMMING LOGIC
Analysis, design, evaluation and representation of algorithms. Includes flow charts and pseudo codes. Introduction to programming. Class design with UML. Emphasis on the basic structures of data, algorithms for searches and ordering. Lecture/Lab. Requires additional time in an open lab.

3 credits

COMP 2300 VISUAL PROGRAMMING
Analysis, design and implementation of programs through the use of a visual programming language. Includes the administration of objects, their properties, events and methods. Emphasis on the definition of variables, types of data, registers and other programming structures, subprograms, iteration structures, decision, and selection. Closed laboratory. Requires additional time in an open laboratory. Prerequisites: COMP 2110, 2120.

3 credits

COMP 2315 STRUCTURED PROGRAMMING
Discussion of the fundamentals of programming of data types, declarations, control structures and subprograms. Includes modular programming and data transfer between modules, capability of variables, basic data structures, sets, registries, archives and pointers. Design, coding, verification, debugging errors and documentation. Requires 30 hours of lecture and 30 hours of closed laboratory. Requires additional time of open laboratory. Prerequisites: COMP 2110, 2120.

3 credits

COMP 2320 INTRODUCTION TO JAVA PROGRAMMING
Introduction to the basic concepts of Java language: types of data and flow control. Fundamental structures of programming, classes, objects, and methods. Graphic interfaces, Applets and HTLM. Closed laboratory. Prerequisite: COMP 2315.

3 credits

COMP 2325 ADA PROGRAMMING
Introduction to the development of system programs. Concepts such as data abstraction, multitasking, exception handling and encapsulation. Lexical style of ADA language. Scalar and numbered types, control structures and compound types in ADA. Subprograms such as functions and procedures, packages, and library units, and data transfer between them. Private types. Management of exceptions. Principles of tasking such as parallelism, rendezvous, timing and scheduling. Requires additional time in an open laboratory. Prerequisite: COMP 2315.

3 credits

COMP 2350 AVIATION PROGRAMMING IN C LANGUAGE
Analysis and design of algorithms, data types and structures. Programming in C Language and its application to aviation for problem solving. Lexical and syntactic level, functions, control flow and fork operations. Arrays, strings, pointers, electronic problems, management, flight planning and meteorology. Basic concepts of the UNIX operational system, a platform for maintaining, modifying or developing programs in C. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMP 2120.

3 credits

COMP 2400 OBJECT ORIENTED PROGRAMMING
Introduction to object-oriented languages. Includes objects, classes, messages, instances, variables, capsuling, polymorphism, heritage, methods, expressions, blocks, collections, flows, and applications. Requires additional time in an open laboratory. Prerequisite: COMP 2300.

3 credits

COMP 2501 DISCRETE COMPUTATIONAL STRUCTURES I
Theory and algebra of sets. Applications of one set in another, transformations and substitutions. Relations of equivalencies, order and partial order. Propositional logic. Conditionals: condition of sufficiency, necessity and of sufficiency and necessity. Deductive process and inference rules. Boolean, Karnaugh maps and combination circuits. Requires additional time in an open lab. Prerequisite: COMP 2315.

3 credits

COMP 2502 DISCRETE COMPUTATIONAL STRUCTURES II
Theory of graph and trees. Flow webs. Counting and combinatorial analysis. Recurrence relations: Difference equation of first and second order. Algebraic structures of simple and double composition. Scalar and vectorial fields. Lineal transformations. Fine state machines. Requires additional time in an open lab. Prerequisite: COMP 2501.

3 credits

COMP 2550 LOGICAL AND FUNCTIONAL PROGRAMMING
Fundamental concepts: Atoms, lists, expressions, basic functions, logic operations, recursions and iterations, advantages and disadvantages of types. Logic clause and predicates of first order. Creation of knowledge bases and their access. Goals, binding, and backtracking. Cut operation. Requires 30 hours of lecture and 30 hours in a closed lab. Requires additional time in an open lab. Prerequisite: COMP 2501.

3 credits

COMP 2555 APPLICATIONS IN RELATIONAL DATABASES
Introduction to relational database programming for solving problems of updating, editing, summaries and reports in enterprises. Includes the necessary skills for installing, configuring and adapting a well-accepted commercial relational database to the user's particular needs. Requires 45 hours of lecture-lab in a closed lab. Requires additional time in an open lab. Prerequisite: COMP 2300.

3 credits

COMP 2600 BUSINESS PROGRAMMING
Introduction to the data-processing environment. Basic file organization. Master and transaction files. Operations with file creation, update, restoration, merge and back-up copies. Design and generation of reports through a commercially oriented programming language. Requires additional time in an open lab. Prerequisites: COMP 2300, 2315.

3 credits

COMP 2610 WEB PROGRAMMING
Design, development and implementation of commercial applications for the WEB. Use of programming languages for WEB scripting. Programming from the server and client aspects. Includes the design of forms for the capture, validation and presentation of data. Emphasis on transaction processing with data bases in client-servant environments. Closed laboratory. Requires additional time in an open lab. Prerequisites: COMP 2015, 2600.

3 credits

COMP 2900 DATA STRUCTURES
Design and implementation of objects from capsulated data and their operations. Includes handling of data in sequential and dynamic structures, solution of problems with basic abstract data types such as, stacks, queues, arrays, trees and graphs. Emphasis on techniques for handling data such as searching and ordering. Implementation of different data structures through the use of recursive and non-recursive processes. Use of an object oriented programming language. Requires additional time in an open lab. Prerequisites: COMP 2400, 2501.

3 credits

COMP 2970 SEMINAR FOR THE ASSOCIATE DEGREE IN APPLIED SCIENCE IN COMPUTER SCIENCE
Research and study of important topics in computer science. Practice in skills and knowledge developed in the study of the Associate Degree in Applied Science in Computer Science. For Associate Degree candidates only.

3 credits

COMP 3010 FILE MANAGEMENT AND ORGANIZATION
Characteristics of data files storing devices. Advanced techniques of physical and logical organization of files. File sorting and merging. Introduction to data bank concepts. Applications and development using a business-oriented, high-level language. Requires additional time in an open lab. Prerequisite: COMP 2600.

3 credits

COMP 3200 COMPUTER ORGANIZATION AND ASSEMBLER LANGUAGE
Digital systems. Organization and structure of main components in computer systems. Representation and manipulation of numerical and non-numerical data at machine level. Comparison between different instruction sets and corresponding directional modes. Fetching and operations execution, depending on architecture. Interruption concepts. Access-and memory management techniques, registers and peripherals. Requires additional time in an open lab. Prerequisite: COMP 2900.

3 credits

COMP 3320 THE COMPUTER IN TEACHING
Computer languages developed to teach computer skills to children (LOGO, PILOT and others). "Turtle" graphics. Set of instructions, programming and comparative language model to develop instructional modules. Evaluation of selected educational programs and discussion of the applied psychological principles and other attributes that have made such programs attractive and adequate for teaching. Requires additional time in an open lab.

3 credits

COMP 3400 SOFTWARE ENGINEERING
Analysis of the phases in the implementation and development cycle of software: specifications, design, verification, validation, documentation and maintenance. Emphasis on efficiency measures and reengineering techniques. Requires additional time in an open lab. Prerequisite: COMP 2900.

3 credits

COMP 3410 COMPUTER SECURITY
Analysis of the fundamentals necessary to understand the risks and threats against computational systems. Includes the study of the vulnerability of possible attacks of computational systems. Emphasis on the use of the controls and protection methods necessary to guarantee the suitable operation of the systems. Prerequisite: COMP 3200.

3 credits

COMP 3500 OPERATING SYSTEMS
Analysis of the concepts and functions of operating systems. Includes multiprogramming, multithreads, multiprocessing and timesharing. Emphasis on the administration of resources, such as: processors, memory and peripherals. Discussion of the administration of real and virtual memory, file systems, security and protection. Requires additional time in an open lab. Prerequisite: COMP 3200.

3 credits

COMP 3600 COMPUTER GRAPHICS
Basic principles and techniques of computer graphics: point plotting, clipping, windowing, viewports, polygons and perspectives. Introduction to graphic nucleus. Graphics for data presentation. Linear transformations: rotation, transfer and change of scales. Animation techniques. Deletion of lines and hidden surfaces. Requires additional time in an open lab. Prerequisites: COMP 2502, 2900.

3 credits

COMP 3800 PROGRAMMING LANGUAGES
Analysis of the evolution of programming languages: data types, operations, verification of types, control structures, control and access of data, administration of memory, syntax, semantics and content binding. Emphasis on the introduction to alternating paradigms in programming languages. Includes comparison in implementing different concepts among several programming languages. Requires additional time in an open lab. Prerequisite: COMP 3200.

3 credits

COMP 3850 THEORY OF DATABANKS
Basic objectives, functions, models, components and applications for databank systems. Analysis of the different data models. Considerations on the design and implementation of a databank. Operational requirements: performance, integrity, security, concurrence and retrieval. Requires additional time in an open lab. Prerequisites: COMP 2900.

3 credits

COMP 397_ SPECIAL TOPICS
Analysis of current topics relevant to the computer science area. Prerequisite: Authorization from the Director of the Department.

1-6 credits

COMP 4000 MICROPROCESSORS ARCHITECTURE AND PROGRAMMING
Microprocessors of 16, 32 and 64 binary digits. Large scale integrated circuits. Devices, interfacing, interrupt input and output, memory and bus structures. Programming and design of control systems based on microprocessors. Requires additional time in an open lab. Prerequisites: COMP 3200.

3 credits

COMP 4160 PARALLEL PROCESSING
Evolution of parallel processing in computation systems. Parallel-processing architecture. Pipeline principles. Vector and Matrix processing. Techniques for developing control algorithms for concurrent multiple processing. Applications of multi-process systems will be discussed. Requires additional time in an open lab. Prerequisites: COMP 3500, 4000.

3 credits

COMP 4200 TELEPROCESSING AND NETWORKS
Fundamental concepts of communication, classification, topology, analysis, design, implementation, data communication network security and communication architecture, including the OSI model. Communication protocols and distributed processing. Hardware equipment evaluation and software programs of high commercial acceptance networks. Requires additional time in an open lab. Prerequisites: COMP 2502, 3500.

3 credits

COMP 4220 ADVANCED TELEPROCESSING AND NETWORKS
Analysis of the concepts of modulation with emphasis on PSK and FSK, compression and decompression of data, Packet Switched Networks, Circuit Switched Networks, ATM, ISDN, private networks, dates encryption and communication safety. Requires additional time in an open lab. Prerequisite: COMP 4200.

3 credits

COMP 4230 INSTALLATION AND CONFIGURATION OF PHYSICAL COMPONENTS FOR NETWORKS
Installation and configuration of physical components for a network. Includes the study of the basic concepts and preparation of physical transmission means such as optical fiber, coaxial cable and Twisted Pair. Requires additional time in an open lab. Prerequisite: COMP 4220.

3 credits

COMP 4235 OPERATING SYSTEMS FOR NETWORKS
Concepts and functions of operating systems for networks with emphasis on Unix. Advanced concepts of TCP/IP. Requires additional time in an open lab. Prerequisites: COMP 3500, 4200.

3 credits

COMP 4240 NETWORK MANAGEMENT
Basic functions of planning, organizing, directing and controlling a computer network. Structures and procedures for evaluating and selecting software for implementing a network. Prerequisite: COMP 4230.

3 credits

COMP 4250 DATABASE DEVELOPMENT, IMPLEMENTATION AND ADMINISTRATION
Advanced concepts in the design of databases. Development and implementation of a relational database. Design of Entity-Relation models (E-R). Documentation, evaluation, and optimization. Maintenance and safety. Closed laboratory. Requires additional time in an open lab. Prerequisite: COMP 3850.

3 credits

COMP 4270 AUTOMATA THEORY
Analysis of automata concepts, finite automata and finite memory, transition tables, Meally and Moore models, strongly connected machines, reduced diagrams, component of state diagrams and infinite automata. Application of calculable functions by means of Turing. Discussion of the operation of programmable machines, programs, universal machines for a programmable computer and the Post System for the administration of symbols. Prerequisite: COMP 2502.

3 credits

COMP 4280 COMPILERS
Design and construction of lexical and syntax analyzers, parsing techniques, intermediate code generation. Management of symbol tables, object code optimization and generation in the design of computers. Requires additional time in an open lab. Prerequisites: COMP 3800, 4270.

3 credits

COMP 4420 SYSTEMS DESIGN AND ANALYSIS
Description of systems and systems analysis environment. Basic tools for design and analysis, and applications to the systems life cycle and development. Project-management principles and methods. Prerequisite: COMP 3400.

3 credits

COMP 4430 SYSTEMS DEVELOPMENT AND IMPLEMENTATION
Determination of programming tools. Prototype elaboration, testing, debugging and validation. Processes for change; the techniques used for systems implementation. Systems documentation and users operation manual. Systems evaluation and optimization. Requires additional time in an open lab. Prerequisite: COMP 4420.

3 credits

COMP 4480 ARTIFICIAL INTELLIGENCE
History, fundamentals and applications of artificial intelligence. State space, heuristic search strategies and search control (depth first, breadth first). Representation of knowledge. Reasoning strategies (forward, backward). Knowledge engineering: production rules, diffuse logic. Requires additional time in an open laboratory. Requires 30 hours of lecture and 15 hours in a closed lab. Prerequisites: COMP 2550, 2900.

3 credits

COMP 4500 EXPERT SYSTEMS
Analysis of engineering of knowledge and artificial intelligence. Includes the study of forward and backward chaining, systems based on heuristic rules, the connection with data bases, and the use of programming environment. Emphasis on the study of the functions of an expert system: acquisition of knowledge, based on semantic and neural frameworks. Requires additional time in an open lab. Prerequisite: COMP 4480.

3 credits

COMP 4580 INTRODUCTION TO ROBOTICS
History and evolution of automatons (robots). Robotics and applications. Manipulators (arms), actuators, and effectors, controllers, classification of robots. Homogeneous transformations. Direct and inverse kinematics. Dynamic and kinematic modelings. Internal and external sensors. Artificial-vision systems; robotic languages; job planning. Programming techniques of robots. Requires additional time in an open lab. Prerequisite: COMP 3200.

3 credits

COMP 4600 COMPUTER ARCHITECTURE
Analysis of memory hierarchy, access strategies, internal and external memories, series and parallels processors, multiprocessing, processors of regular order, analysis of cost and considerations in computer design. Prerequisite: COMP 3200.

3 credits

COMP 4910 INTERNSHIP AND PROFESSIONAL ETHICS
Experience in real-work environment in institutions approved by course supervisor. Development and presentation of project in computer science under the supervision of a faculty member. Seminars on professional ethics. Course requires the students to work for at least 120 hours in internship and attend seminars related to professional ethics. Prerequisites: COMP 4200, 4420.

3 credits

Courses in Computerized Management Information Systems and Information Technology (CMIS)

CMIS 1100 INTRODUCTION TO INFORMATION SYSTEMS
Discussion of the components, concepts, principles and ethical aspects that govern information systems. Use of spreadsheet programs and management of databases in the solution of business problems. Requires a total of 45 hours of lecture/lab. Requires additional time in an open lab.

3 credits

CMIS 1200 PROGRAMMING ALGORITHMS
Discussion of programming algorithms. Application of means for the development of logic in the solution of a problem. Description of basic structures such as sequence, decision and repetition. Includes programming logic for the management of arrays and archives.

3 credits

CMIS 2301 COBOL I
Study of the programming language COBOL (Common Business Oriented Language) in structured form, the syntax of programming, documentation, data description, organization and techniques and business applications. Requires additional time in an open lab. Prerequisite: CMIS 1200.

3 credits

CMIS 2310 VISUAL PROGRAMMING IN INFORMATION SYSTEMS
Analysis, design and implementation of programs by using a visual programming language. Emphasis on managing objects, their properties, events and methods. Includes the development of programming structures and subprograms. Requires a total of 45 hours of lecture/lab. Requires additional time in an open laboratory. Prerequisite: CMIS 1200.

3 credits

CMIS 2450 INTRODUCTION TO INTERNET IN THE ENTERPRISE
Discussion of the technical foundations of the structure and operation of the Internet as a global service network to the business information systems. Includes fundamental concepts for the management and practical application of the services and resources that Internet offers to business. Design, development and publication of business pages in Internet sites. Requires a total of 45 hours of lecture/lab. Requires additional time in an open lab.

3 credits

CMIS 3130 DESIGN AND MANAGEMENT OF DATABASES
Analysis of the basic foundations and application of a database management system and its aspects. Emphasis on the design and management of databases by using different models, methodologies and environments. Requires a total of 45 hours of lecture/lab. Requires additional time in an open lab. Prerequisite: CMIS 2310.

3 credits

CMIS 3300 RPG
Production of reports by means of RPG (Report Program Generator), file maintenance and processing managerial information. Requires additional time in an open lab. Prerequisites: CMIS 2200, ACCT 1161.

3 credits

CMIS 3330 C LANGUAGE
Analysis of Programming Language C and its usefulness in solving problems beginning with the creation of compilers to modulation. Prerequisite: CMIS 1200.

3 credits

CMIS 3350 TELECOMMUNICATIONS AND BUSINESS NETWORKS
Analysis of the basic concepts of telecommunications and networks from an organizational perspective. Discussion of technologies, equipment and network systems. Prerequisite: CMIS 2450.

3 credits

CMIS 3400 ELECTRONIC BUSINESSES
Analysis of the theoretical and practical foundations of electronic businesses. Discussion of business strategies and the integration of information systems to the new economy and technology in the Internet. Examination of the different models of electronic businesses. Requires a total of 45 hours of lecture/lab. Requires additional time in an open lab. Prerequisite: CMIS 2450.

3 credits

CMIS 3420 INFORMATION SYSTEMS ANALYSIS AND DESIGNS
Analysis of methodologies for the design of information systems. Emphasis on the application of means and techniques in the life cycle of the development of an information system. Requires 45 additional hours in an open lab. Prerequisite: CMIS 3130.

3 credits

CMIS 3570 INTERNET PROGRAMMING
Analysis of the concepts, structures and syntax of a programming language for Internet to be used in the solution of business problems. Requires 45 hours of lecture/lab. Requires a total of 45 additional hours in an open lab. Prerequisite: CMIS 2450.

3 credits

CMIS 4320 INFORMATION SYSTEMS DESIGN
The sequence of procedures, activities and considerations for the design phase of an information system. Tools and techniques to support the design process. Requires additional time in an open lab. Prerequisite: CMIS 3320.

3 credits

CMIS 4500 AUDITING AND SECURITY IN INFORMATION SYSTEMS
Analysis of auditing procedures and methods applied to information systems. Includes security aspects and physical and logical controls. Prerequisite: CMIS 3420.

3 credits

CMIS 4610 INFORMATION SYSTEMS FOR PLANNING ENTERPRISE RESOURCES
Design of process and implementation models of information systems and knowledge of an application that handles integrated information systems for the planning of enterprise resources. Requires a total of 45 hours of lecture/lab. Requires additional time in an open lab. Prerequisites: CMIS 3420, ACCT 1162.

3 credits

CMIS 4870 MANAGEMENT OF INFORMATION SYSTEMS PROJECTS
Analysis of the organization, planning, and control of information systems projects. Discussion of the scope of the management of the project itineraries and resources. Practice in the use of project management programs. Requires a total of 45 hours of lecture/lab. Prerequisite: CMIS 4500.

3 credits

CMIS 4915 PRACTICUM
Supervised work experience in the field of computerized management information systems under the supervision of a faculty member. Students are required to devote at least 135 hours to develop the work or project assigned in lieu of the practicum.

3 credits

CMIS 4970 SEMINAR IN INFORMATION SYSTEMS
Current topics that may give a view of future trends in computer technology and their interactions with information systems. Areas of the great demand such as communications, artificial intelligence, the optimization of operations and the interaction of media in a changing society in search of new technological alternatives to meet the challenges of an organizational environment in continuous evolution. Prerequisite: have approved 30 credits in core courses and in major courses.

3 credits

Courses in Computerized Tomography and Magnetic Resonance (CTMR)

CTMR 3030 PHYSICAL PRINCIPLES OF COMPUTERIZED TOMOGRAPHY AND MAGNETIC RESONANCE
Study of the physical principles of computerized tomography and magnetic resonance. Methods of acquiring and processing data, the components of the system for acquiring and reconstruction of images, the programs and technical parameters used in the acquisition of images including the equipment and quality assurance are discussed. Prerequisites: RATE 2231, 2232.

3 credits

CTMR 3040 PROCEDURES AND IMAGES I
Study and discussion of tracking techniques related to the criteria for the acquisition of high quality images applied to the central nervous system. Includes the study of anatomy, positioning criteria, protocol options and the associated pathology. Prerequisite: RATE 2250.

3 credits

CTMR 3041 PROCEDURES AND IMAGES II
Study and discussion of tracking techniques related to the criteria for the acquisition of high quality images applied to the neck, thorax and mediastinum. Includes the study of anatomy, positioning criteria, protocol options and the associated pathology. Prerequisites: CTMR 3030, 3040.

3 credits

CTMR 4020 PROCEDURES AND IMAGES III
Study and discussion of tracking techniques related to the criteria for the acquisition of high quality images applied to the area of the abdomen and pelvis. Includes the study of anatomy, positioning criteria, protocol options and the associated pathology. Prerequisites: CTMR 4911, 3041.

3 credits

CTMR 4021 PROCEDURES AND IMAGES IV
Study and discussion of tracking techniques related to the criteria for the acquisition of high quality images applied to the musculoskeletal regions. Includes the study of anatomy, positioning criteria, protocol options and the associated pathology. Prerequisites: CTMR 4912, 4020.

3 credits

CTMR 4911 INTERNSHIP IN COMPUTERIZED TOMOGRAPHY I
Clinical experience aimed to develop and improve the professional skills acquired in previous courses for making images of the head, neck and spine by computerized tomography and magnetic resonance. The student will be under the supervision of a qualified specialist in computerized tomography and magnetic resonance. One hundred eighty (180) hours of practice. Prerequisites: CTMR 3030, 3040.

3 credits

CTMR 4912 INTERNSHIP IN COMPUTERIZED TOMOGRAPHY II
Clinical experience aimed to develop and improve the professional skills acquired in previous courses for making images of the thorax, mediastina and the muscular-squeletal system by computerized tomography and magnetic resonance. The student will be under the supervision of a qualified specialist in computerized tomography and magnetic resonance. One hundred eighty (180) hours of practice. Prerequisites: CTMR 4911, 3041.

3 credits

CTMR 4913 INTERNSHIP IN COMPUTERIZED TOMOGRAPHY III
Clinical experience aimed to develop and improve the professional skills acquired in previous courses for making images of the area of the abdomen and pelvis by computerized tomography and magnetic resonance. The student will be under the supervision of a qualified specialist in computerized tomography and magnetic resonance. One hundred eighty (180) hours of practice. Prerequisites: CTMR 4912, 4020.

3 credits

Courses in Conflict Mediation (MEDI)

MEDI 4510 INTRODUCTION TO ALTERNATIVE METHODS FOR CONFLICT RESOLUTION
Study of the alternative methods for conflict resolution and their use within the legal system. Emphasis on the conceptualization of the conflict phenomenon, the advantages and limitations of mediation versus the adversative traditional methods. Includes the attitude of the mediation approach, self-analysis and self-reflection on how to use this method as it applies to the diverse areas of social structure and functions.

1 credit

MEDI 4520 LEGAL AND CONSTITUTIONAL BASES THE CONFLICT MEDIATION
Study of the legal and constitutional bases that provide validity to conflict mediation as an alternative process of the judicial system. Includes the special and other pertinent laws, and the legal terminology related to the alternative methods for the conflict resolution. Prerequisite: MEDI 4510.

1 credit

MEDI 4530 COMMUNICATION SKILLS AND EMOTIONAL MANAGEMENT
Analysis of the basic principles of interpersonal communication during the process of mediation intervention and negotiation. Emphasis on the processes of collecting the necessary information about the parties to be able to make a well informed intervention, and the basic principles of the emotional management of the parties in conflicts, during the mediation process. Prerequisite: MEDI 4520.

1 credit

MEDI 4540 STRUCTURE AND PROCESSES OF THE CONFLICT MEDIATION
Analysis of the structures, procedures and stages of the process of conflict mediation. Includes conciliation techniques and strategies, negotiation, persuasion, bargaining and the attainment of settlements. Emphasis on the ethical responsibility of the mediator and the management of diverse matters in the process: the communication between the mediator and the Court of Justice, as well as the role of the experts. Prerequisite: MEDI 4530.

2 credits

MEDI 4550 DOMESTIC VIOLENCE AND ITS IMPLICATIONS IN MEDIATION
Analysis of the violence phenomena that affect the family and how these can influence in an effective negotiation. Emphasis on the protocols and processes according to the Regulations of the Alternative Methods for Conflict

Resolution, as well as the established laws and professional ethics. Include the signs and symptoms associated with domestic violence during the relational communication of the parties in mediation. Prerequisite: MEDI 4540.

1 credit

MEDI 4560 APPLICATION AND BASIC PRACTICE IN CONFLICT MEDIATION
Analysis of the process of conflict resolution through mediation in diverse scenarios. Emphasis on case conceptualization, the basic principles and fundamental skills, as well as the stages of the process. Developments of hypothetical cases through role playing and analysis of real situations. Prerequisite: MEDI 4550.

1 credit

MEDI 4571 STRUCTURES AND MODELS OF MEDIATION IN FAMILY SYSTEMS
Study of the different styles, configurations and models of the contemporary family. Discussion of the main models, paradigms and techniques of mediation intervention for the resolution of conflicts in family systems. Study of systemic, structural, transformative, linear and narrative-circular models. Application of the conceptualization, relevant intervention, evaluation, and prevention strategies to situations confronting families.

2 credits

MEDI 4572 CONFLICT MEDIATION IN DIVORCE CASES
Study of mediation in cases of marriages in a divorce process. Emphasis on the family mediator's role as part of the legal system and the alternative methods in light of the laws and system of Puerto Rico. Includes the laws and jurisprudence, the norms, rules, public policy and protocols related to divorce, the division of marital property, child support laws, and parental child relations, among others. Prerequisite: MEDI 4571.

2 credits

MEDI 4573 CONFLICT MEDIATION WITH FAMILIES AND COUPLES THAT STAY TOGETHER
Study of the diverse intervention methods with couples and families that remain together. Emphasis on the perception of cases based on therapeutic mediation and the evaluation of individual, couples or family needs profiles. Includes negotiation, conciliation, agreements, and the reestablishment of interpersonal relations. Prerequisite: MEDI 4572.

2 credits

MEDI 4574 DOMESTIC LEGAL CONFLICT MEDIATION
Study of mediation of intra-family conflicts with members of the immediate family nucleus and the extended family members. Emphasis on the laws and relative jurisprudence in cases of donations, inheritances and estates. Includes the norms, rules, public policies, protocols, as well as the role of the family mediator as part of the legal system. Prerequisite: MEDI 4573.

2 credits

MEDI 4575 APPLICATION AND PRACTICE CASES IN FAMILY CONFLICTS
Design, implementation, development and evaluation of the mediation process in family cases. Development of intervention plans, conceptualization of cases and practices of hypothetical situations. Includes the mediation process at different levels and different conflict types, and the practice of the stages of the process of mediation, negotiation and conciliation through role playing. Requires the final presentation of an applied and practical work. Prerequisite: MEDI 4574.

2 credits

MEDI 4581 CONCEPTUAL FRAMEWORK OF SCHOOL MEDIATION
Analysis of the conceptual frameworks on which the mediation processes in the school scenario are built. Emphasis on the study of integral, proactive, multidimensional conflict resolution programs. Includes the differentiation and convenience of the transformative frameworks in comparison with traditional punitive and adversative methods.

2 credits

MEDI 4582 CONFLICT RESOLUTION PROGRAMS AND SCHOOL MEDIATION
Analysis of the conflict resolution programs of in the school community. Emphasis on the study of the approaches, rational principles and bases. Includes the suppositions of the programs and the essential elements of the implementation process of school mediation programs. Prerequisite: MEDI 4581.

2 credits

MEDI 4583 CONFLICT RESOLUTION OF IN THE ELEMENTARY SCHOOL K-6
Analysis of programs that take care of handling conflict situations in the school communities in grades K-6. Emphasis on the learning of behaviors of healthy social coexistence, through suitable methods of creative solution of conflicts. Includes emotional management and the reestablishment of interpersonal relations. Prerequisite: MEDI 4582.

2 credits

MEDI 4584 PEER MEDIATION IN JUNIOR AND HIGH SCHOOLS 7-12
Analysis of the process of implementation, development and evaluation of mediation programs for couples in the school scenario, with adolescents. Emphasis on the design of training for student mediators. Includes the study of the mediators' profile, the creation and operation of conciliation committees, and the registry of the mediation interventions realized in the program. Prerequisite: MEDI 4583.

2 credits

MEDI 4585 APPLICATION AND PRACTICE CASES IN SCHOOL CONFLICTS
Design, implementation, development and evaluation of school mediation programs. Development of intervention plans, conceptualization of cases and practices of hypothetical situations. Includes the process of conflict resolution at different levels of the school system and practice in the process of school mediation through role playing. Requires the final presentation of an applied and practical work. Prerequisite: MEDI 4584.

2 credits

MEDI 4591 MODELS AND LAWS OF LABOR RELATIONS
Analysis, discussion and familiarization with the current labor laws, the administrative mediation. Emphasis on the identification of the causes of conflicts and their management in the work environment. Includes the use of tools to implement alternative methods programs for conflict resolution in the work scenario.

2 credits

MEDI 4592 LABOR-MANAGEMENT CONFLICT MEDIATION
Analysis of mediation of worker-employer conflicts. Emphasis on the differentiation between work and non-work conflicts. Includes the use of mediation techniques to arrive at satisfactory agreements and the development of mediation programs after obtaining a quality work environment and effective interpersonal relations. Prerequisite: MEDI 4591.

2 credits

MEDI 4593 COLLECTIVE BARGAINING
Analysis of bargaining as a tool in the work environment in its worker-employer relations. Emphasis on the process of collective bargaining and the management of the collective agreement between worker unions and employers, in the private and public sectors. Includes the diversity of variants in bargaining and the necessary adjustments in conformity with the conflict. Prerequisite: MEDI 4592.

2 credits

MEDI 4594 EXECUTIVE-MANAGERIAL CONFLICT MEDIATION
Analysis of the basic principles of conflict resolution in the managerial area. Emphasis on the development of executive mediation skills applied to the interpersonal and work relations within the company, industry or organization. Includes the nature of the culture, dimensions, structure and organizational competency, as well as the

structure and the strategic conflict management by the leadership personnel within the organization. Prerequisite: MEDI 4593.

2 credits

MEDI 4595 APPLICATION AND PRACTICE CASES OF LABOR CONFLICTS
Design, implementation, development and evaluation of conflict resolution programs in the work scenario. Emphasis on the development of intervention plans, conceptualization of cases and practice of hypothetical situations. Includes the conflict resolution process at different levels of the organizational system and practice through role playing. Requires the final presentation of an applied and practical work. Prerequisite: MEDI 4594.

2 credits

Courses in Criminal Justice (CJUS)

CJUS 1000 INTRODUCTION TO CRIMINOLOGY
Discussion of the principles and foundation of the etiology of crime and the criminological theories from a biopsychosocial context. Includes intervention and prevention strategies.

3 credits

CJUS 2050 VICTIMS OF CRIME
Discussion on the victims of crime from a social, political and legal approach. Analysis of programs, services, support groups and their implications for the victims and their families.

3 credits

CJUS 2070 HUMAN AND CIVIL RIGHTS
Discussion of the principles and contemporary foundations of human and civil rights. Prerequisite: POLS 1011.

3 credits

CJUS 2075 SOCIAL DEVIATION
Discussion of the theoretical foundations of social deviation. Emphasis on the identification of the biopsycosocial factors that influence altered conduct and social reaction.

3 credits

CJUS 2090 JUVENILE JUSTICE SYSTEM IN PUERTO RICO
Discussion of the origin, philosophy and development of the Juvenile Justice System in Puerto Rico and its substantive and procedural aspects. Emphasis on the System response to juvenile delinquency, its course, development and analysis.

3 credits

CJUS 2205 ORAL AND WRITTEN COMMUNICATION FOR FORENSIC INVESTIGATION
Writing of documents to be used as part of the expert work of investigation. Includes oral and written communication techniques for the presentation and writing of forensic information.

3 credits

CJUS 2910 INTERNSHIP IN CRIMINAL JUSTICE
Integration and application of knowledge acquired and skills developed in the core and specialization courses to the study and analysis of situations related to criminal investigation. Seventy-five hours are required: 65 hours of practical experience in a criminal investigation scene and 10 class hours. Prerequisites: Have passed a minimum of 50 credits, including courses CJUS 3025, 3030, 4030, 4040 and SOCI 2080. Prerequisite: the written approval of the Coordinator of the Criminal Justice Program.

3 credits

CJUS 3015 WOMEN FACED WITH CRIME
Analysis of the contemporary vision of women facing crime and the justice system. Emphasis on the theories regarding women in relation to sex, gender, crime and the criminal process.

3 credits

CJUS 3025 CRIMINAL LAW
Application of the basic principles of Criminal Law and interpretation rules. Crimes with greatest social impact and applicable legislation.

3 credits

CJUS 3027 WHITE COLLAR CRIME
Analysis of the sociological and legal aspects of white-collar crime and its corporative and individual manifestations. Emphasis on the social, economic and ethical cost of this behavior. Discussion of cases and applicable jurisprudence.

3 credits

CJUS 3030 INTERVIEWS AND INTERROGATION
Analysis of interviewing and interrogation techniques as sources of primary information in criminal investigation. Emphasis on these techniques and report preparation and procedures for presentation.

3 credits

CJUS 3035 SPECIAL CRIMINAL LAWS
Analysis of criteria for interpretation, application and discussion of Special Criminal Laws in Criminal Justice. Study of applicable legislation. Prerequisite: CJUS 3025.

3 credits

CJUS 3040 PENOLOGY
Analysis of modern penology and its repercussion in the criminal justice system and in society. Includes the evolution of sanctions, correctional models, therapeutic strategies and institutional treatment.

3 credits

CJUS 3045 RIGHTS OF THE CORRECTIONAL POPULATION
Analysis of disciplinary, civil and criminal actions and the implementation of security measures. Includes legislative, administrative and judicial decisions applicable to the rights of the correctional population. Prerequisites: CJUS 3025, 3040.

3 credits

CJUS 3055 FEDERAL JURISDICTION
Analysis of the functions and duties of the agencies that compose the Federal Criminal Justice System. Emphasis on the substantive and procedural aspects of federal criminal legislation.

3 credits

CJUS 3060 CORRECTIONAL ADMINISTRATION
Application of basic principles of management and operation of correctional institutions. Emphasis on administration of services, security measures, supervision and discipline of the correctional population institutional groups.

3 credits

CJUS 3080 COMMUNITY BASED REHABILITATION
Identification of nonprofit institutions that offer rehabilitation services leading to reeducation and reintegration of the transgressor outside an institutional environment. Analysis of the differences and effectiveness of alternate programs of rehabilitation and prevention of recidivism.

3 credits

CJUS 3241 FORENSIC INVESTIGATION I
Analysis of the fundamental techniques and elements of forensic investigation. Includes the reconstruction of the crime scene as a result of criminal activities and the identification of suspects. Study and application of the rules of evidence and criminal procedure regarding the presentation of proof in judicial processes.

3 credits

CJUS 3242 FORENSIC INVESTIGATION II
Analysis of technology within the field of forensic investigation. Application of computerized programs of forensic, investigation such as: the identification of the suspect, the reconstruction of the scene, dactylographic and ballistic applications.

3 credits

CJUS 4014 ANALYSIS OF DATA FOR FORENSIC INVESTIGATION
Analysis of the statistical support techniques for forensic investigation. Includes the use of the computer lab to look for information, to introduce, analyze and interpret statistical data of interest to the discipline. Requires 30 hours of lecture and 30 hours of lab.

3 credits

CJUS 4020 ALCOHOLISM AND DRUG ADDICTION
Analysis of the physiological, psychological and sociological factors that motivate the use and abuse of alcohol and controlled substances; legal aspects. Emphasis on the behavior of the drug addict and the alcoholic, prevention and rehabilitation programs.

3 credits

CJUS 4030 CRIMINAL INVESTIGATION I
Analysis of general concepts of modern techniques for investigating crimes. Application of the scientific method and auxiliary sciences to the study of cases in criminal investigation. Prerequisites: CJUS 3025, 3030.

3 credits

CJUS 4035 MODERN TECHNOLOGY IN CRIMINAL INVESTIGATION
Study on modern technology advances in the field of the criminal investigation. Emphasis on the application of technology to aspects of forensic sciences. Visits and activities in centers and specialized laboratories. Prerequisite: CJUS 4030.

3 credits

CJUS 4040 EVIDENCE MANAGEMENT
Analysis and management of Rules of Evidence and Criminal Procedure applicable to investigation. Study of cases and applicable jurisprudence. Prerequisite: CJUS 4030.

3 credits

CJUS 4060 FRAUD DETECTION AND MANAGEMENT
Analysis of the concept of fraud and its different manifestations in public and private institutions. Discussion of alternatives for prevention and applicable legislation. Prerequisites: CJUS 3025, 4030.

3 credits

CJUS 4910 INTERNSHIP IN PENOLOGY
Integration of knowledge, skills and attitudes in the work scenario in the area of penology, supervised by a professor. This Internship will take place in Puereto Rico. One hundred hours are required: 90 hours of practical experience in a penal institution or in a social treatment center and 10 lecture hours. Prerequisites: A minimum of 90 approved credits including 12 credits in the major and all requirements established in the Internship Handbook.

3 credits

CJUS 4914 INTERNSHIP IN CRIMINAL INVESTIGATION
Integration of knowledge, skills and attitudes in the work scenario in the area of criminal investigation, supervised by a professor. This Internship will take place in Puereto Rico. One hundred hours are required: 90 hours of practical experience and 10 lecture hours. Prerequisites: A minimum of 90 approved credits including 12 credits in the major and all requirements established in the Internship Handbook.

3 credits

CJUS 4915 INTERNSHIP IN FORENSIC INVESTIGATION
Integration of knowledge, skills and attitudes in a work scenario in the area of forensic investigation, supervised by a professor. This internship will be taken in Puerto Rico. Requires 100 hours: 90 hours of practical experience and 10 hours of class. Prerequisites: Minimum of 90 approved credits, including 12 credits of the major, and compliance with all requirements established in the Internship Manual.

3 credits

CJUS 4972 SEMINAR IN CRIMINAL JUSTICE
Application of the knowledge, skills and attitudes of the discipline to situations related to the Criminal Justice System. Prerequisites: CJUS 2090, 3025, SOCI 2080.

3 credits

Courses in Criminology (CRIM)

CRIM 2010 LEGAL SOCIOLOGY
Sociological and historical study of the different legal structures: their development, institutionalization and praxis. Emphasis on State organisms and their power relationships.

3 credits

CRIM 3014 CRIME AND MEDIA
Analysis of the interrelation among media, public opinion, crime and government. Emphasis on the symbiotic relation between knowledge, truth, information and criminal conduct. Prerequisite: CJUS 1000.

3 credits

CRIM 3020 STATISTICAL METHODS APPLIED TO CRIMINOLOGY
Analysis and statistical data processing applied to criminology. Emphasis on the analysis of the descriptive and inferential statistics most used in social research. Application of the statistical knowledge by means of the use of the technology in computer to the criminological research. Prerequisites: GEMA 1000, GEIC 1000.

3 credits

CRIM 3021 GENDER AND CRIME
Interdisciplinary analysis of the construction of gender, its features and how they are related to conducts considered to be antisocial and criminal. Survey of social change with emphasis on social relations by gender. Prerequisites: GEMA 1000, GEIC 1000.

3 credits

CRIM 3040 MENTAL DISORDERS AND CRIMINOLOGY
Evaluation of the biopsychosocial factors that lead to social deviations. Analysis and integration of the different theoretical perspectives related to the mental disorders that contribute to the development and perpetration of criminal acts. Prerequisites: PSYC 1051, CRIM 2010.

3 credits

CRIM 3838 DEVIANT BEHAVIOR, ANTISOCIAL AND CRIMINAL SOCIOLOGY
Study of the main currents of thought related to deviant, antisocial and criminal behavior. Discussion of the social aspects that promote this behavior and the different modalities of intervention and prevention. Prerequisite SOCI 1030.

3 credits

CRIM 4010 CRIMINOLOGICAL SOCIAL RESEARCH
Identification of the philosophical, theoretical and methodological principles most used in criminological social research. Application of scientific social knowledge in the search for solutions to criminality. Prerequisites: SOCI 1030, CRIM 2010, 3020.

3 credits

CRIM 4020 TERRORISM AND SOCIETY
Analysis of the origin and development of the terrorism. Emphasis on the trends and consequences of terrorism at the national and international levels from different perspective: historical, political, religious, economic and the social.

3 credits

CRIM 4030 CONTEMPORARY SOCIAL PROBLEMS
Analysis of contemporary social problems and their relationship with the social functions displayed within the global society in terms of the definition, the origin and the magnitude of criminal activity. Includes human trafficking, cybernetic crimes, drug trafficking, fraud, environmental crimes and crimes without victims, among others. Prerequisite: CRIM 4010.

3 credits

CRIM 4910 INTERNSHIP IN CRIMINOLOGY
Integration of knowledge, skills and attitudes in a work scenario in the area of criminology. Requires 100 hours of practice supervised by a professor: 90 hours of practical experience and 10 hours of classes. Prerequisites: Minimum of 90 approved credits, including 12 credits in the major, and meeting all requirements established in the Internship Manual.

3 credits

CRIM 4970 CONTEMPORARY THEORETICAL DEBATES IN CRIMINOLOGY
Survey of the main currents of criminological thought: similarities, differences, strengths and weaknesses. Analysis and discussion of current theoretical debates. Prerequisite: a minimum of nine credits in the major.

3 credits

Courses in Design (DSGN)

DSGN 1000 ELEMENTS AND PRINCIPLES OF ARTISTIC LANGUAGE
Analysis of the structural elements, the principles of artistic language and its practical application in design. Study of diverse techniques and traditional and contemporary media and experimentation with diverse materials. Requires 90 hours of lecture-workshop.

3 credits

DSGN 1040 DRAWING AS A FOUNDATION FOR DESIGN
Study of drawing as a prefigure of design. Application of the structural elements through drawing techniques and materials. Requires 90 hours of lecture-workshop

3 credits

DSGN 2001 TWO-DIMENSIONAL DESIGN I
Analysis of the principles and elements of design applied to the two-dimensional format. Emphasis on practical design exercises through traditional and contemporary media. Requires 90 hours lecture-workshop

3 credits

DSGN 2002 TWO-DIMENSIONAL DESIGN II
Solution of specific applied two-dimensional design problems. Emphasis on the application of two-dimensional design principles, using traditional and contemporary media, within graphical design and in diverse professions. Requires 90 hours of lecture-workshop. Prerequisite: DSGN 2001.

3 credits

DSGN 2021 TRIDIMENSIONAL DESIGN I
Analysis of design principles applied to three-dimensional space. Emphasis on structure, volume, balance and mass ratio with space. Introduction to the noble materials such as clay, wood and metals, among others; and manipulation and transformation techniques. Requires 90 hours of lecture-workshop.

3 credits

DSGN 2022 TRIDIMENSIONAL DESIGN II
Discussion and analysis of the methods and techniques in three-dimensional design. Study of the conventions, formats and measures in projection drawings. Includes presentation techniques, traditional and contemporary media and the introduction to malleable materials. Requires 90 hours lecture-workshop. Prerequisite: DSGN 2021.

3 credits

DSGN 3000 SURFACE DESIGN, TECHNIQUES AND MATERIALS
Study of design in the two-dimensional surface in which the techniques of baking, smelting, enameling and glass finish are used. Creation of murals, mosaics and other decorative media. Requires 90 hours of lecture-workshop.

3 credits

DSGN 3010 BASIC DIGITAL DESIGN
Study of digital techniques in two and three dimensions, as well as the manipulation of images. Emphasis on the application of the elements of art and the principles of the design to digital images. Requires 90 hours of lecture-workshop.

3 credits

DSGN 3030 CHRONOLOGY OF DESIGN
Chronological Study of the development of design with emphasis on concepts related to the era and geography. Analysis of construction techniques and materials in the creation of the functional and esthetic objects in agreement with the culture.

3 credits

DSGN 3110 APPLIED TRIDIMENSIONAL DESIGN, TECHNIQUES AND MATERIALS
Creation of three dimensional functional objects using baking, smelting, enameling, glass finish and carving techniques. Requires 90 hours lecture-workshop.

3 credits

DSGN 3200 PRINCIPLE OF FUNCTIONAL MATERIALS
Theoretical and practical studies of diverse materials like stone, wood, metal, clay, glass and fabrics. The fundamentals of composition that emphasize the relation between form and function will be applied. Problem solving relevant to contemporary design will be emphasized. Requires 90 hours of lecture-workshop.

3 credits

DSGN 3220 INTERMEDIATE DIGITAL DESIGN
Study of the digital techniques used in graphical design and in objects, with the purpose of developing intermediate and advanced skills in two-dimensional design. Introduction to three-dimensional digital design. Work with illustration, drawing and composition techniques. Application of elements of art and the principles of design to effective digital programs. Brief introduction to cybernetic design programs and animation and multimedia design. Requires 90 hours of lecture-workshop.

3 credits

DSGN 3340 STRUCTURAL DESIGN, TECHNIQUES AND CUTS
Application of construction and sizing concepts and techniques in a variety of traditional and contemporary materials for the creation of functional and esthetic objects. Requires 90 hours of lecture-workshop.

3 credits

DSGN 3400 ENTREPRENEURIAL DEVELOPMENT IN DESIGN
Discussion and analysis of the aspects of entrepreneurial development in the field of applied or functional design. The chronological study of local and international markets and the projection in the development of a design company. Prerequisite: ENTR 2200.

3 credits

DSGN 3500 CONCEPT AND CREATIVITY
Study and application of diverse concepts in the art process and in the development of esthetic creativity. Exercises directed to the development of personal ideas that integrate concept and image. Emphasis on the creation of a style through the original use of art elements and techniques that facilitate expression. Exercises using diverse means and techniques. Requires 90 hours of lecture-workshop.

3 credits

DSGN 3510 SPECIALIZED WORKSHOP
Practice workshop focused on the application of design principles in the creation of works of particular interest. Exposure to a variety of media and techniques that allow the student to choose a specialization area. Requires 120 hours of lecture-workshop.

4 credits

DSGN 4010 DESIGN AND CONTEMPORARY CULTURES
Study and application of functional object design, taking as reference a wide conceptual framework: form-function, body, environment, event, values, contemporary beliefs and cultures. Analysis of the esthetic-functional object in the contemporary world with emphasis on design methods and research, visualization, creation of models and presentation techniques. Prerequisites: DSNG 2001 or DSNG 2021.

3 credits

DSGN 4050 DEVELOPMENT OF PORTFOLIO
Preparation of a portfolio to enter the professional design field or as a presentation for graduate studies. Integration of obtained knowledge and the technical development by means of the presentation of creative works of excellence. Requires 120 hours of lecture-workshop. Prerequisites: DSGN 3500, 3510.

4 credits

DSGN 4910 INTERNSHIP IN DESIGN
Internship that entails work with supervised practice in workshops and studios of artist designers as well as in companies related to design. The supervisor-artist will give a final report. Requires 120 hours of lecture-workshop. Prerequisites: DSGN 3400, 4050.

4 credits

Courses in Design and Development of Video-Games (GAME)

GAME 1100 DESIGN OF VIDEO GAMES
Study of the different processes in the development of video games from their conceptual stage to their realization in a design document. Requires 30 hours of lecture and 30 hours of closed lab.

3 credits

GAME 1200 INTERACTIVE NARRATIVE FOR VIDEO GAMES
Study and application of the different aspects of the narrative process from the basic concepts to the concepts of a non-linear narrative. Discussion of themes of the video games industry related to the field of the writing of: scripts, documentation, manuals, and strategy guides. Discussion of the concept of copyrights. Requires 30 hours of lecture and 30 hours of closed lab.

3 credits

GAME 3101 VIDEO GAME PROGRAMMING I
Discussion of the basic techniques used in the development of a video game. Development and use of tools that allow the student to construct the different components that make up an electronic game. Creation of one or several video games with 2D graphs, sound and limited interactivity. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMP 2400.

3 credits

GAME 3102 VIDEO GAME PROGRAMMING II
Analysis and application of several essential advanced concepts in the construction of video game, such as interconnectivity, data management, abstraction of the laws of physics and the incorporation of algorithms of artificial intelligence. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: GAME 3101.

3 credits

GAME 3103 VIDEO GAME PROGRAMMING III
Analysis of several advanced concepts, such as: the administration of 3D graphs, scripting and game engines. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: GAME 3102, PHYS 3300.

3 credits

GAME 3201 GRAPHICS FOR VIDEO GAMES I
Analysis of the basic concepts of visual arts design, such as balance, composition, contrast, lighting, perspective, color theory and texture. Exposure to the management of 2D images and their digital representation. Use of different tools related to digital art. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMP 2501.

3 credits

GAME 3202 GRAPHICS FOR VIDEO GAMES II
Application of the basic concepts of digital art 3D, such as the representation of 3D digital models, geometric transformations, integration of textures, perspective, and the effects of light and shade. Use of tools for managing 3D graphs. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: 2502 COMP, GAME 3201.

3 credits

GAME 3203 GRAPHICS FOR VIDEO GAMES III
Application of advanced techniques in managing 3D models such as: tonalities, shading, bulging, reflection, refraction, transparency, diffraction, lighting, caustics, blending, depth and animation. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: GAME 3202.

3 credits

GAME 3400 ARTIFICIAL INTELLIGENCE FOR VIDEO GAMES
Review of the diverse areas of the new field of artificial intelligence with emphasis on the application of artificial intelligence to the development of video games. Discussion of topics related to artificial intelligence, such as learning, behavior, the search for routes, the analysis of movement, and coordinated movements, among others. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMP 2900.

3 credits

GAME 4100 PROJECT: DESIGN, DEVELOPMENT AND PUBLICATION OF A VIDEO GAME
Practice of all knowledge acquired throughout the program. "Production of a video game" from its conceptual stage to its publication. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: COMP 3400, GAME 1100, 3102, 3202. This course must be passed with a minimum grade of B.

3 credits

GAME 4300 EMERGING ISSUES IN THE FIELD OF VIDEO GAMES
Discussion of emerging topics related to video games. Includes innovating technologies, new algorithms and shifts of paradigms in areas directly or indirectly related to video games, such as: the area of artificial intelligence, graphs,

computerized vision, robotics, and the video games industry. Requires 45 hours of lecture. Prerequisites: COMP 3400, GAME 1100, 3103, 3203.

3 credits

GAME 4400 VIDEO GAME DEVELOPMENT FOR CONSOLES AND PORTABLE EQUIPMENT
Analysis of the architectures of different equipment and consoles, their capacities and their limitations. Development of video games for different consoles and equipment. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: COMP 3400, GAME 1100, 3102, 3202.

3 credits

GAME 4500 EMULATORS
Discussion of the theory and design of various emulators. Includes the architecture of their respective consoles and the different tools used for analysis, extraction and modification of the equipment and the information within them. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: COMP 3200, 3400.

3 credits

GAME 4910 INTERNSHIP: EXPERIENCE IN THE VIDEO GAMES INDUSTRY
Experience in a real work environment related to the design of video games in an institution approved by the course supervisor. Requires 200 hours of internship and the authorization of the department director. Prerequisites: COMP 3400, GAME 1100, 3102, 3202.

3 credits

Courses in Education (EDUC)

EDUC 1080 FIELD EXPERIENCES IN THE EDUCATIONAL SCENARIO I
Field experiences through the exposure of the student to diverse educational scenarios in order to observe, analyze and reflect on the school environment, the function of the teacher and another educational and nonteaching personnel. Requires 10 hours in the classroom, a minimum of 10 hours in the educational scenario and a minimum grade of B in the course.

1 credit

EDUC 2020 HEALTH, NUTRITION AND FIRST-AID
Discussion of concepts and principles related to health, nutrition and first-aid. Prevention as a concept and mental attitude. Includes the study of infectious diseases and other common childhood conditions. Emphasis on the immunization schedule. Relationship between health and nutrition. Importance of breast feeding and good nutrition. Planning a menu that responds to the nutritional needs of children. The appropriate first aid practices to treat common accidents; emphasis on emergency plans and simulations and the function of the teacher in planning a safe and healthy environment inside and outside the school.

3 credits

EDUC 2021 HISTORY AND PHILOSOPHY OF EDUCATION
Critical analysis of the philosophical and historical development of education and its objectives. Consideration of educational practice in light of historical developments in the western world in general and Puerto Rico in particular.

3 credits

EDUC 2022 SOCIETY AND EDUCATION
Critical analysis of social, cultural and educational situations and the educational and societal alternatives to attend to these situations. Emphasis on problems and ethical and legal aspects confronting schools in Puerto Rico and in modern society.

3 credits

EDUC 2031 DEVELOPMENTAL PSYCHOLOGY
Processes of development during the life cycle and their effect on behavior, especially those occurring from birth to old age including death. Identification and analysis of developmental problems and their repercussions on the teaching-learning process and on students' future development.

3 credits

EDUC 2032 LEARNING PSYCHOLOGY
The different approaches and theories of learning and their application to teaching in the classroom, in particular in those cases that promote independent, interdependent, constructive, reflective and critical learning. Analysis and evaluation of the strategies and techniques of teaching derived from these different approaches and theories and their relationship with the general goals of formal education. Prerequisites: EDUC 2021, 2031.

3 credits

EDUC 2053 NATURE AND NEEDS OF STUDENTS WITH AUTISM
Discussion of the autism spectrum disorders. Emphasis on the characteristics and types of Autism. Includes etiology, identification, characteristics and needs of these students and the different teaching programs available from pre-school to the secondary level.

3 credits

EDUC 2055 PSYCHO-SOCIAL ASPECTS OF STUDENTS WITH AUTISM
Analysis of the behavior and personality characteristics of students with autism. Emphasis on the language disorders and the different types of syndromes associated with the condition. Includes the interpersonal relations of children with autism and their social and family environment.

3 credits

EDUC 2057 COMMUNICATION PROBLEMS AND METHODS FOR STUDENTS WITH AUTISM
Discussion of the communication problems manifested in delay or total deficit of the spoken language, as well as the difficulty to begin or maintain effective social communication. Includes the stereotyped or repetitive language of these children, the social interaction problem and repetitive conduct pattern.

3 credits

EDUC 2060 USE OF TECHNOLOGY IN EDUCATION
Administration of different computerized educational programs, including the search for information and the use of multimedia for conducting the educational process. Will be offered in a computer and multimedia laboratory. Prerequisite: GEIC 1010.

2 credits

EDUC 2840 CHILD DEVELOPMENT
Detailed study of each stage of development of a child from conception to the period of adolescence. Prerequisite: EDUC 2031.

3 credits

EDUC 2870 THE EXCEPTIONAL STUDENT POPULATION
Discussion of the general characteristics presented by the different groups that comprise the exceptional student population, as well as the strategies and procedures for working with these groups in the regular classroom. Includes the use of technological assistance. Identification of educational services offered to this population in Puerto Rico and the analysis of laws that guarantee their right to education, especially the exceptional student population under 21 years of age.

4 credits

EDUC 2875 LANGUAGE STIMULATION
Emphasis on the emergent literacy and relationship between language and thought. The theories and approaches regarding the acquisition and development of language in early childhood. Analysis of factors that affect language development; functions of the teacher and parents in creating an environment that promotes linguistic development. Discussions of characteristics of children with speech and language problems and their etiology. Planning activities for the development of auditory skills, oral expression, comprehension, interpretation and vocabulary enrichment.

3 credits

EDUC 2890 FIELD EXPERIENCES IN THE EDUCATIONAL SCENARIOS II
Field experiences through visits to classrooms at the level in which the future teacher is going to specialize in order to observe, analyze and reflect on the environment in the classroom, the handling of the classroom, the tasks, the

daily participation and the control of time, considering the paradigms of teaching. Emphasis on the teacher-student and student-teacher relationships. Requires 15 hours in the classroom, a minimum of 15 hours in the educational scenario and a minimum grade of B in he course. Prerequisites: EDUC 1080, 2022 and 2031.

2 credits

EDUC 2905 NATURE AND NEEDS OF STUDENTS WITH MENTAL RETARDATION AND EMOTIONAL DISTURBANCES

Discussion of mental retardation and emotional disturbances. Includes the etiology, identification and characteristics. Emphasis on the needs of these students, educational programs beginning at the preschool level, and orientation to parents and the community.

3 credits

EDUC 2906 NATURE AND NEED OF STUDENTS WITH SPECIFIC LEARNING PROBLEMS, ADD AND ADHD

Discussion of specific learning problems, ADD and ADHD. Includes the etiology, identification and characteristics. Emphasis on the needs of these students, the different educational programs beginning at the preschool level, and orientation to parents and the community.

3 credits

EDUC 2907 NATURE AND NEEDS OF THE DEAF AND PARTIALLY DEAF STUDENT

Analysis of the nature, needs and classification of the deaf and partially deaf student. Identification of the etiology and characteristics of students with these conditions. Emphasis on the comparison of the different educational programs available from the pre-school to the secondary level. Includes the ethical and legal aspects for this particular population.

3 credits

EDUC 2909 SIGN LANGUAGE IN THE CONTEXT OF THE DEAF AND PARTIALLY DEAF CULTURE

Introduction to the use of the basic formal sign language. Survey of the characteristics of the culture concept of the deaf and partially deaf. Emphasis on the examination of the value system, beliefs and rules that guide how the deaf and partially deaf student feels and behaves. Includes the basic skills of a professional interpreter.

3 credits

EDUC 2911 CURRICULUM, METHODOLOGY AND MATERIALS FOR TEACHING THE DEAF AND PARTIALLY DEAF STUDENT

Comparative analysis of the traditional and innovative curriculum models for educational intervention in the deaf and partially deaf student. Emphasis on the importance of an interdisciplinary focus, as well as on the use of technological resources in teaching. Classroom visits in schools where deaf and partially deaf students are integrated, as well as visits to specialized classes for this population, are required.

3 credits

EDUC 3003 NATURE AND NEEDS OF INFANTS AND PRESCHOOL AGE CHILDREN WITH DEVELOPMENTAL DEFICIENCIES

Introduction to early intervention. Topics related to appropriate intervention methods with children up to five years of age with disabilities and the skills that they should develop. Techniques and instruments used to evaluate the development of infants and preschool children that are suspected to have some disability. Students will have the opportunity to analyze existing instruments, construct new instruments and experience the evaluation of a child. The role of the family in the development of the plan for its individualized services and its role in the intervention program.

3 credits

EDUC 3010 SOCIAL, EMOTIONAL AND COGNITIVE DEVELOPMENT OF THE CHILD

Analysis and study of children in their social and cultural context. Fundamental principles of personality development. Bases for cognitive-moral development and analysis of the relationship of environment-behavior in the development of the child. Prerequisites: EDUC 2022, 2032.

3 credits

EDUC 3013 TEACHING STRATEGIES
Careful examination of the strategies used by teachers to establish a favorable learning climate. Study of the most effective teaching methods including those that promote the development of values and their application in the classroom. Utilization of educational technology as a resource aid in class design. Emphasis on the formulation of questions, the problematization of learning and on activities which lead students to meet and build their own understanding. Use of collaborative work (in teams) as a teaching technique.

2 credits

EDUC 3015 CLINICAL EXPERIENCES IN THE EDUCATIONAL SCENARIO I
Clinical experiences as a student-teacher in a school at the level and in the subject matter of the student's specialty. Emphasis on the student's professional development and the use of effective educational strategies to work with small groups and later with the whole group. Requires 15 hours in the classroom, a minimum of 25 hours in the educational scenario and a minimum grade of B in the course. Prerequisites: EDUC 2890 and the authorization of the Coordinator or Supervisor of Clinical Experiences.

2 credits

EDUC 3050 THE CHILD AND THE SOCIAL ENVIRONMENT
The child in the social and cultural context; analysis of social forces affecting the most important agencies and their contribution toward the achievement of educational goals. Prerequisite: EDUC 2031.

3 credits

EDUC 3053 DIAGNOSIS, EVALUATION AND ASSESSMENT TECHNIQUES FOR STUDENTS WITH AUTISM
Review of the formal instruments used by specialists for data compilation related to diagnosing autism. Analysis of autism indicators or characteristics according to experts and recent studies. Includes the preparation and interpretation of informal tests and their implications for placement and preparation of the Individualized Education Program of the student. Design and application of informal techniques of evaluation and assessment.

3 credits

EDUC 3054 CURRICULUM AND TEACHING METHODS FOR STUDENTS WITH AUTISM
Comparative analysis of the curriculum models suggested for educational intervention of children with autism. Includes the study of innovative teaching strategies and methods. Emphasis on the importance of the interdisciplinary approach in intervention and the use of technological resources in the education of children with autism. Visits to classrooms of children with autism are required.

3 credits

EDUC 3075 MATHEMATICS CURRICULUM, TEACHING AND ASSESSMENT IN THE PRIMARY GRADES (K-3)
Analysis and discussion of the mathematics curriculum with emphasis on the mastery, interpretation and understanding of curricular content in the primary grades. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards for the mathematics program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for teaching mathematics at this level.

2 credits

EDUC 3076 MATHEMATICS CURRICULUM, TEACHING AND ASSESSMENT IN THE PRIMARY GRADES (4-6)
Analysis and discussion of the mathematics curriculum with emphasis on the mastery, interpretation and understanding of curricular content at the elementary level. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards for the mathematics program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for teaching mathematics at this level.

3 credits

EDUC 3083 SOCIAL STUDIES CURRICULUM, TEACHING AND ASSESSMENT IN THE PRIMARY GRADES (K-3)
Analysis and discussion of the social sciences curriculum with emphasis on the mastery, interpretation and understanding of curricular content in the primary grades. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards for the social studies program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for teaching social studies at this level.

2 credits

EDUC 3084 SOCIAL STUDIES CURRICULUM, TEACHING AND ASSESSMENT IN THE PRIMARY GRADES (4-6)
Analysis and discussion of the social sciences curriculum with emphasis on the mastery, interpretation and understanding of the curricular content at the elementary level. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards for the social studies program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for teaching social studies at this level.

3 credits

EDUC 3090 CHILDREN'S LITERATURE
Evaluative and critical study of the literary forms and content for children from the most ancient folkloric forms through modern forms. Critical selection of a representative literary anthology for each teaching level in the Puerto Rican and universal environments. Problems, creative projects and laboratory, including the production of a creative literary work, reading, reports, practical observations, discussion and demonstrations of the effective use of children's literature from a non-discriminatory perspective.

3 credits

EDUC 3110 DIAGNOSIS AND CORRECTION OF DEFICIENCIES IN ORAL AND WRITTEN COMMUNICATION OF SECONDARY LEVEL STUDENTS
The deficiencies in oral and written communication of secondary level students with emphasis on methods of diagnosing and correcting them. Tests and techniques available to correct these deficiencies. Prerequisite: EDUC 2031.

3 credits

EDUC 3126 PSYCHO-PHILOSOPHICAL INFLUENCES IN CURRICULUM MODELS FOR EARLY CHILDHOOD EDUCATION
Historical background of preschool education. The principal psycho-philosophical trends and their influence in curricular models at the preschool level. The constructive, behavioral and maturation theories and their educational implications. Includes the analysis and comparison of the principal models and/or educational programs for early childhood (Head Start, Montesstori, High Scope, Distar and Bank Street, among others) based on the relationship of the variables they have in common. Emphasis on the design of a curriculum guide for the preschool level based on the principles of the appropriate practices for the development and planning of teaching.

4 credits

EDUC 3130 FINE ARTS IN THE EDUCATIONAL PROCESS
Teaching fundamentals in the visual arts, drama and music. Use of painting, modeling, simple puppet construction and mobile and stationary art to stimulate artistic creativity in children. Auditory, rhythmic and instrumental experience of a creative nature. Songs, simple games and organization of arrangements for orchestras and drama.

3 credits

EDUC 3140 LANGUAGE AND READING
Discussion of the nature of language, its formation and development, and its importance in the concept of reading. Analysis of the factors affecting the development of language and the concepts related to the ability to read. Includes planning, strategies and techniques for the development of language and reading skills. Prerequisite: EDUC 2031.

3 credits

EDUC 3150 THE KINDERGARTEN IN THE SCHOOL PROGRAM
Global vision of preschool age children: the suggested curriculum for their personal and academic preparation and for mastery of the necessary skills that will promote self-management and satisfy their needs. Lectures, discussions, preparation of materials and observation of classes at the early childhood level. Study of the most important works in this field. Prerequisite: EDUC 2031.

3 credits

EDUC 3170 PARENTS AS EDUCATORS
Analysis and study of the means and/or programs to achieve active parent participation in the educational process of the child. Techniques for promoting effective relations between family, school and community. Discussion of the practices and/or styles of rearing favorable to complete development during childhood. Program designs for educating parents as models, leaders and participants in the complete development of their children. Focus on the traditional and nontraditional structure of the family in the Puerto Rican and universal contexts.

3 credits

EDUC 3185 ENGLISH CURRICULUM, TEACHING AND ASSESSMENT AT THE ELEMENTARY LEVEL (K-3)
Analysis and discussion of the English curriculum with emphasis on mastery, interpretation and understanding of curricular content in the primary grades. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards of the English Program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for the teaching of English at this level.

2 credits

EDUC 3186 ENGLISH CURRICULUM, TEACHING AND ASSESSMENT AT THE ELEMENTARY LEVEL (4-6)
Analysis and discussion of the English curriculum with emphasis on mastery, interpretation and understanding of curricular content at the elementary level. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards of the English Program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for the teaching of English at this level.

3 credits

EDUC 3187 ENGLISH CURRICULUM, TEACHING AND ASSESSMENT AT THE ELEMENTARY LEVEL (K-6)
Application of teaching-learning theories and instructional models in the process of planning and developing educational activities. Diagnosis of needs, formulation of objectives, selection of content and planning of teaching units in the teaching of English as a Second Language and elaboration of materials. Application of assessment instruments and techniques in English. The teaching of reading-writing as a cognitive process.

4 credits

EDUC 3188 ENGLISH CURRICULUM, TEACHING AND ASSESSMENT AT THE SECONDARY LEVEL
Application of teaching-learning theories and instructional models in the process of planning and developing educational activities. Diagnosis of needs, formulation of objectives, selection of content and planning of teaching units in the teaching of English as a Second Language and elaboration of materials. Application of assessment instruments and techniques in English. The teaching of reading-writing as a cognitive process.

4 credits

EDUC 3190 LANGUAGE ARTS IN EARLY CHILDHOOD
Teacher training to develop and direct activities that will help the child in the developmental stage of attitudes and skills for a better management of language. Discussion of the appropriate techniques to enrich the child's vocabulary and to correct speech defects. Techniques learned in previous courses will be used. Prerequisite: EDUC 2875.

3 credits

EDUC 3200 INTEGRATION OF THE COMPUTER IN THE METHODOLOGY AND ASSESSMENT OF LEARNING

Analysis of the teaching methodology, theories of learning and the current educational paradigms and their application to the processes of planning, development and assessment of learning. Includes the development and effective administration of the propitious environment for learning incorporating the use of the computer and practice in the use of computerized applications that help expand the processes of teaching and assessment of learning. Analysis of research and projects dealing with the integration of the computer in the teaching and learning processes. Emphasis will be given to the coordination of the processes of teaching, learning and assessment with the use of the computer, according to the established professional standards.

3 credits

EDUC 3232 LANGUAGE ARTS CURRICULUM, TEACHING AND ASSESSMENT AT THE ELEMENTARY LEVEL (4-6)

Analysis and discussion of the language arts curriculum with emphasis on mastery, interpretation and understanding of curricular content at the elementary level. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards of the Spanish Program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for the teaching of language arts at this level.

3 credits

EDUC 3235 READING AND WRITING IN THE PRIMARY GRADES

Study and analysis of different stages in the development of reading and writing. Discussion and application of different techniques, methods and strategies for the teaching of reading and writing. Design of an environment that promotes the development and learning of reading and writing skills in the home and at school. Use of the computer in the process of teaching reading and writing. Evaluation and assessment of reading and writing skills. Development of favorable habits and attitudes towards reading and writing. Emphasis on the standards of the Spanish Program of the Puerto Rico Department of Education.

3 credits

EDUC 3260 ORGANIZATION AND ADMINISTRATION OF CHILDHOOD SERVICES

Planning, administration and evaluation of programs and services for the child. Discussion of the rules that govern the operation of different types of public, private or individually owned centers. Review of the roles and responsibilities of the board of directors, the administration, the teacher and other employees. Emphasis on budgetary management and personnel supervision and evaluation. Includes the planning of physical space inside and outside the classroom, as well as the criteria for the selection and purchase of materials and equipment. Discussion of the policies of the centers as they relate to the operating norms manual.

3 credits

EDUC 3265 NATURAL SCIENCES CURRICULUM, TEACHING AND ASSESSMENT IN THE PRIMARY GRADES (K-3)

Analysis and discussion of the natural sciences curriculum with emphasis on the mastery, interpretation and understanding of curricular content in the primary grades. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards for the natural sciences program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for teaching natural sciences at this level.

2 credits

EDUC 3266 NATURAL SCIENCES CURRICULUM, TEACHING AND ASSESSMENT IN THE PRIMARY GRADES (4-6)

Analysis and discussion of the natural sciences curriculum with emphasis on the mastery, interpretation and understanding of curricular content at the elementary level. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards for the natural sciences program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for teaching natural sciences at this level.

3 credits

EDUC 3270 EDUCATIONAL DIAGNOSIS, EVALUATION AND ASSESSMENT FOR STUDENTS WITH DISABILITIES
Analysis, management and interpretation of evaluation instruments used for collecting data related to how exceptional students function at the different educational levels. Discussion of the evaluation process for the diagnosis, placement and preparation of the individualized educational program of the student. The use of alternate techniques of evaluation and assessment is required.

3 credits

EDUC 3290 CLASSROOM MANAGEMENT
Analysis of theories and principles related to management of behavior in the classroom. Application of strategies, methods and intervention and prevention techniques that can be used by the teacher at the different educational levels. Discussion of the importance of collaboration and the consultation process with teachers, parents and another personnel.

3 credits

EDUC 3300 ADAPTIVE LIVING SKILLS FOR THE HANDICAPPED
Emotional and social problems, resources and services for persons with disabilities. Legal rights, life style, social organizations, interpersonal relations, community services and the use of leisure time. Includes basic home economics skills for persons with disabilities. Prerequisite: EDUC 2031.

3 credits

EDUC 3400 THE DEAF AND HARD OF HEARING CHILD
Physio-anatomical and acoustic bases of speech reproduction; interrelationship of speech and hearing. Prerequisite: EDUC 2031.

3 credits

EDUC 3420 CURRICULAR CONTENT, DIAGNOSIS AND TREATMENT OF LEARNING PROBLEMS IN MATHEMATICS
Analysis of curricular content, methods and techniques for teaching mathematics to students with limitations at the different educational levels. Application of evaluation, measurement and assessment instruments for identifying problems in this area. Planning, selection and design of materials and use of technology in teaching.

3 credits

EDUC 3440 CURRICULAR CONTENT, DIAGNOSIS AND CORRECTION OF READING AND WRITING PROBLEMS
Analysis of reading and writing curricular content. Application of teaching methods and techniques to students with limitations that present deficiencies in the lecto-writing area. Application of evaluation, measurement and assessment instruments for identifying the different problems presented. Planning, selection and design of materials and use of technology in teaching at the different educational levels. Prerequisite: EDUC 3140.

3 credits

EDUC 3460 DESIGN AND DEVELOPMENT OF PRESCHOOL CURRICULUM AND MATERIALS FOR DISABLED CHILDREN
The study and analysis of basic curriculum principles of preschool level special education and their application to Puerto Rico. The presentation and discussion of innovative teaching techniques used in natural environments. Emphasis on the integration of knowledge, critical thinking and the solution of problems within the curricular content. Students will create and adapt curricular material and use technology to meet the developmental and individual needs of the children in small and in large groups.

3 credits

EDUC 3464 DEVELOPMENT OF PROGRAMS AND SERVICES FOR CHILDREN WITH DISABILITIES AND THEIR FAMILIES
Service program models available in Puerto Rico for children with disabilities and their families. Emphasis on the integration of services among governmental and private agencies. Includes visits to observe programs that offer

direct services to infants and preschool children with disabilities. Includes the preparation of a proposal for the development of a service program for infants and preschool children with disabilities.

3 credits

EDUC 3466 SEMINAR: INFANTS AND PRESCHOOLERS WITH DISABILITIES
Study and evaluation of needs of children with disabilities and their families. Development of the necessary skills for working with families that have children with disabilities. Includes 50 hours of experience supervised by the University professor in family settings, cooperative work with the family and the drafting of an individualized service program for the family.

4 credits

EDUC 3467 TECHNIQUES AND ASSESSMENT INSTRUMENTS FOR INFANTS AND PRESCHOOL CHILDREN WITH DISABILITIES
Analysis of techniques and instruments used to evaluate the development of infants and preschool children with disabilities. Students will have the opportunity to analyze existing instruments, and the construction of new instruments and have the experience of assessing a child.

3 credits

EDUC 3470 TECHNOLOGICAL ASSISTANCE, CURRICULUM AND MATERIALS FOR TEACHING STUDENTS WITH DISABILITIES
Analysis of curricular content from kindergarten to grade 12, elaboration and adaptation of materials and handling of equipment. Emphasis on technological and instructional programs that can be used in the teaching-learning process at the different educational levels and application of the technological assistance. Discussion of the importance of alternate evaluation processes, collaboration, training and technical assistance for teachers, parents and other personnel.

3 credits

EDUC 3515 BASIC FUNDAMENTALS OF SIGN LANGUAGE
Development of the skills necessary for teaching sign language to students with communication disorders.

3 credits

EDUC 3563 METHODS AND TECHNIQUES IN OFFICE SYSTEMS ADMINISTRATION
Application of theories and models of the teaching and learning processes in the planning, development and assessment in the field of Office Systems Administration. Emphasis on needs assessment, formulation of educational objectives and the application of technology. Prerequisites: EDUC 2031 and having passed the 2000 and 3000 level courses of the Office Systems Administration program.

3 credits

EDUC 3564 METHODS AND TECHNIQUES IN TEACHING SOCIAL STUDES
Application of the theories and models of teaching and learning processes in the planning, developing, and assessing of learning. Selection and preparation of materials for teaching social studies. Emphasis on the diagnosis of needs, formulation of educational goals, and application of technology for teaching the discipline. Prerequisite: EDUC 3013.

3 credits

EDUC 3565 METHODS AND TECHNIQUES FOR TEACHING HISTORY
Application of the theories and models of teaching and learning processes in the planning, developing, and assessing of learning. Selection and preparation of materials for teaching history. Emphasis on the diagnosis of needs, formulation of educational goals, and application of technology for teaching the discipline. Prerequisite: EDUC 3013.

3 credits

EDUC 3566 METHODS AND TECHNIQUES FOR TEACHING CHEMISTRY
Application of the theories and models of teaching and learning processes in the planning, developing, and assessing of learning. Selection and preparation of materials for teaching chemistry. Emphasis on the diagnosis of needs,

formulation of educational goals, and application of technology for teaching the discipline. Prerequisite: EDUC 3013.

3 credits

EDUC 3570 STRATEGIES, METHODS AND TECHNIQUES FOR TEACHING STUDENTS WITH DISABILITIES

Analysis of individualized educational programs, teaching strategies, methods and techniques. Includes experience in educational environments where students with different limitations in the varied educational levels are cared for. Emphasis on daily planning accompanied by simulations.

3 credits

EDUC 3581 METHODS OF TEACHING READING AND THE PREPARATION OF MATERIALS FOR THE DEAF AND PARTIALLY DEAF STUDENT

Application of the strategies and individualized methods of teaching of reading applicable to the deaf and partially deaf student. Emphasis on the use of the method of functional reading. Includes the design of materials and of technological assistance equipment for the deaf and partially deaf student. Use of intermediate formal sign language. Prerequisite: EDUC 2910.

3 credits

EDUC 3585 LANGUAGE DEVELOPMENT IN THE DEAF AND PARTIALLY DEAF: THEORY AND PRACTICE

Analysis of the typical stages of language between the ages of 0-5 years. Emphasis on the deficiencies in the evolutionary development of the language and the aspects that form the treatment and rehabilitation of the language of the deaf and partially deaf child. Use of formal sign language at the advanced level. Prerequisite: EDUC 3580.

3 credits

EDUC 3600 USE OF THE COMPUTER IN TEACHING

Practice in the use of the microcomputer for data processing and as a resource in the teaching-learning process for problem solving and skills development in mathematics, language and data processing. Prerequisites: EDUC 2031, GEIC 1010.

2 credits

EDUC 3610 GROUP PROCESSES IN THE CLASSROOM

Analysis of theories related to group interaction and dynamics in the classroom. Application to real classroom situations by means of simulations. Prerequisite: EDUC 2031.

3 credits

EDUC 3620 HUMANISTIC FOCUS IN TEACHING

The humanistic approach in relation to learning and human development. The implications of these approaches to teaching, to study programs and to the student-teacher relation in the classroom. Prerequisite: EDUC 2031.

3 credits

EDUC 3630 SCHOOL AND COMMUNITY

Human resources and public and private agencies that support the school in its educational function. Strategies to enlist the cooperation of community agencies in education. Prerequisite: EDUC 2031.

3 credits

EDUC 3640 ADULT EDUCATION

The characteristics of the adult student population, their educational goals, and implications for teaching and programs of study. Analysis of teaching strategies for adults. Prerequisite: EDUC 2031.

3 credits

EDUC 3650 EDUCATIONAL RESEARCH
Practice in the use of different research techniques for decision-making in the educational process. Prerequisite: EDUC 2031.

3 credits

EDUC 3660 BILINGUAL EDUCATION
The characteristics of the bilingual student population and their implications for teaching. Teaching strategies and educational programs that help the bilingual student integrate satisfactorily into the school setting. Prerequisite: EDUC 2031.

3 credits

EDUC 3670 NON-TRADITIONAL PROGRAMS
The different educational alternatives to the regular instructional programs in public and private schools. The principles upon which their objectives, learning activities and educational programs are based. Among those studied are: The Non-Graded School, the Montessori School, Community Project and Educational Resource Center. Prerequisite: EDUC 2031.

3 credits

EDUC 3680 CHILDREN WITH PHYSICAL AND HEALTH DISABILITIES
The causes of health and physical disabilities (including disorders in the process of neurological development leading to physical disabilities). Incidence, procedures for service and adaptations required for the school environment. Prerequisite: EDUC 2031.

3 credits

EDUC 3690 EDUCATION OF CHILDREN WITH VISUAL DISABILITIES
The causes of visual problems, incidence, characteristics and available educational services. Procedures for identification, evaluation and diagnosis and educational strategies for students with visual disabilities. Prerequisite: EDUC 2031.

3 credits

EDUC 3700 SECONDARY EDUCATION FOR YOUTHS WITH DISABILITIES
Analysis of the variety of educational programs available at the secondary and university levels for youths with disabilities, including guidance and counseling services for the youths and their parents. Includes the prevocational and vocational programs available and the participation of these youths in the work world. Attention is given to rights guaranteed by law and to community service programs. Prerequisite: EDUC 2031.

2 credits

EDUC 3710 INTEGRATION OF CHILDREN WITH DISABILITIES IN REGULAR CLASSROOMS
The role of the special education teacher in helping the regular education teacher prepare materials and curriculum modifications for children with disabilities in regular classrooms. Prerequisite: EDUC 2031.

3 credits

EDUC 3720 EDUCATIONAL INNOVATIONS
Analysis of changes and trends in modern education. Analysis of innovative projects that have been implemented in different educational settings. Prerequisite: EDUC 2031.

3 credits

EDUC 3750 EDUCATIONAL TECHNOLOGY LABORATORY
Psychological and educational basis for the use of television, radio, movies, filmstrips, videotapes, tape recordings and other audiovisual materials in the teaching-learning situation. Approximately 20 hours will be devoted to laboratory experience. Prerequisite: EDUC 2031.

3 credits

EDUC 3863 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF BIOLOGY

Application of the theories of instruction in planning and developing learning activities in the teaching of biology. Preparation of teaching materials using technological resources and stimulating creativity. Practice in the use of the microcomputer as a teaching resource. Includes the evaluation and selection of educational resources available on the market. Prerequisite: EDUC 2031.

3 credits

EDUC 3864 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF SCIENCE IN THE JUNIOR HIGH SCHOOL

Theories of instruction and their application in planning and developing learning activities in the teaching of science in the junior high school. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

EDUC 3865 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF SPANISH AT THE SECONDARY LEVEL

Theories of instruction and their application in planning and developing learning activities in the teaching of Spanish at the secondary level. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

EDUC 3869 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF MATHEMATICS AT THE SECONDARY LEVEL

Theories of instruction and their application in planning and developing learning activities in the teaching of mathematics. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

EDUC 3872 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN PRESCHOOL SPECIAL EDUCATION

Theories of instruction and their application to planning and developing learning experiences for special education preschoolers. Emphasis on the preparation of teaching materials using technological resources, creativity and innovation. Practice in the use of microcomputers as teaching tools. Selection and evaluation of commercially produced teaching materials. Prerequisite: EDUC 2031.

3 credits

EDUC 3873 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF THE VISUAL ARTS

Theories of instruction and their application in planning and developing learning activities in the teaching of the visual arts. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

EDUC 3875 EDUCATIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF PHYSICAL EDUCATION AT THE SECONDARY LEVEL 7-12

Educational theories, selection of materials, teaching styles and strategies as they apply to the planning, organization, motivation and management of the discipline. Practice in the use of technological equipment as a teaching resource and in the selection and application of educational materials during the teaching learning process. Experience of this process in the discipline is required.

3 credits

EDUC 3876 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF MUSIC

Theories of instruction and their application in planning and developing learning activities in the teaching of music. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

EDUC 3877 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN SPECIAL EDUCATION

Theories of instruction and their application in planning and developing learning activities in special education. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

EDUC 3878 EDUCATIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF PHYSICAL EDUCATION AT THE ELEMENTARY LEVEL

Educational theories, selection of materials, teaching styles and strategies as they apply to the planning, organization, motivation and management of the discipline. Practice in the use of technological equipment as a teaching resource and in the selection and application of educational materials during the teaching learning process. Experience of this process in the discipline is required.

3 credits

EDUC 3885 EDUCATIONAL THEORIES AND TECHNOLOGICAL RESOURCES FOR THE TEACHING OF ADAPTED PHYSICAL EDUCATION

Instructional theories, selection of materials, teaching styles and strategies as they apply to the planning, organization, motivation and management of the discipline. Practice in the use of technological equipment as a teaching resource and in the selection and application of educational materials during the teaching learning process. Experience of this process in the discipline is required.

3 credits

EDUC 3886 EDUCATIONAL THEORY, METHODOLOGY, AND TECHNOLOGICAL RESOURCES IN TEACHING SCHOOL HEALTH (K-12)

Educational theories, models, teaching styles and strategies of education as they apply to the planning of school health. Discussion of the models most used in the design and development of the curriculum of the discipline. Practice in the use of technological equipment as resources that assist the educational process. Selection and preparation of didactic materials for teaching health at the K-12 levels. Prerequisite: EDUC 2032.

3 credits

EDUC 4009 TECHNOLOGICAL ASSISTANCE FOR TEACHING CHILDREN AND YOUNG PEOPLE WITH MILD DISABILITIES

Application of technology as an educational means for teaching students with mild disabilities. Operation of technological equipment and programs of an educational nature to facilitate the teaching-learning process for this population.

1 credit

EDUC 4010 MANAGING THE CONDUCT OF STUDENTS WITH AUTISM IN THE CLASSROOM

Critical analysis of the behavior problems of students with autism. Review of the different strategies of intervention used in handling students with autism and the techniques of conduct modification. Preparation of plans for conduct modification and the importance of the participation of parents and other people in the process. Includes legal aspects concerning managing the conduct of children with autism.

3 credits

EDUC 4011 EVALUATION AND ASSESSMENT
Theories, techniques and means used by teachers for evaluation and assessment. Analysis of these techniques by comparing the subject content with the instrument used. Preparation, administration, correction and interpretation of tests and other evaluation and assessment techniques. Emphasis on the use of results as a means to improve the teaching- learning process. Prerequisite: EDUC 2032.

3 credits

EDUC 4012 CLASSROOM RESEARCH
Introduction to research that can be carried out by the teacher in the classroom using applied quantitative and qualitative methods. Study and analysis of research carried out by teachers in the classroom.

2 credits

EDUC 4013 CLINICAL EXPERIENCES IN THE EDUCATIONAL SCENARIO II
Clinical experiences as a student-teacher under the direct supervision of a cooperating teacher in the classroom and a university supervisor. The student-teacher has the responsibility to plan and offer as a minimum one period of class daily during the school semester. If the educational scenario permits it, at the elementary level the student can gradually teach two subjects in one grade or a subject in two grades, and at the secondary level it must be in the student's discipline with two different groups or grades. Requires a minimum of three (3) hours daily in the educational scenario and a minimum grade of B in the course. Prerequisites: 1) have passed the Core and Major Requirements, 2) have a minimum general average of 2.50 in the Core, Major and Specialization Requirements and 3) have the authorization of the Coordinator or Supervisor of Clinical Experiences.

4 credits

EDUC 4020 PHILOSOPHY OF EDUCATION
Critical analysis of the philosophical development of teaching and the effect these developments have had on educational policies and practices. One of the principal objectives of the course consists in helping students develop their own educational philosophy. Prerequisite: EDUC 2031.

3 credits

EDUC 4025 EVALUATION METHODS, ALTERNATE EVALUATION, DIAGNOSIS AND ASSESSMENT OF THE DEAF AND PARTIALLY DEAF STUDENT
Survey of the formal instruments used by specialists for the diagnosis of auditory problems. Evaluation design, assessment and learning performance of the deaf and partially deaf. Includes preparation and interpretation of informal tests, alternate evaluation and elaboration of the Individualized Educational Program (IEP).

3 credits

EDUC 4030 ENVIRONMENTAL HEALTH AND ECOLOGY
Analysis of activities that cause contamination of the environment, their effects on the different ecosystems and the living beings with emphasis on human beings. Study of health conservation practices of human beings as well as of their natural surroundings. Emphasis on the process of problem solving related to environmental health. Problems are considered from the individual and communitarian point of view.

3 credits

EDUC 4035 METHODOLOGY OF TEACHING THE MATERNAL LANGUAGE AND LITERATURE
Analysis of learning theories and their focus on teaching the maternal language, as well as the corresponding teaching techniques and strategies. Emphasis on the teaching of the production and understanding of texts, grammar and of the literary speech, in agreement with the more recent theories and focuses. Prerequisites: SPAN 2542, 3020.

4 credits

EDUC 4040 COUNSELING IN HEALTH ASPECTS
Analysis of inadequate behaviors and life styles, through the study of situations in which habits and customs are perceived that put integral health at risk. Development of the professional competencies necessary for recognizing risk behaviors and for planning courses of action that facilitate reconciliation and adoption of healthful practices and life styles from birth to old age.

3 credits

EDUC 4050 CURRICULUM DESIGN
The principles for the design of educational courses and programs. The relationship between curriculum and instruction. Experiences are provided for developing skills in the design, selection and modification of teaching units, courses and programs. In addition, the criteria for the selection of texts and educational materials are studied. Prerequisites: EDUC 3013, 4011.

2 credits

EDUC 4090 TEACHING THE CULTURALLY DEPRIVED
The influence exerted by a culturally deprived environment on the cognitive aspects of learning, social functions and the self-esteem of the child. Analysis of teaching methods, techniques and educational materials. Prerequisite: EDUC 2031.

3 credits

EDUC 4100 SOCIOLOGY OF EDUCATION
The sociological factors on which education is based and their effect on education. Emphasis on social problems confronting schools and society. Prerequisite: EDUC 2031.

3 credits

EDUC 4110 CHILDREN'S PLAY AS A LEARNING PROCESS
The theory of play in relation to the total development and educational process of the young child. The planning of play activities within and outside the classroom giving attention to the cognitive, soci-emotional and kinesthetic aspects. Movement patterns characteristic of children for self-discovery. Critical analysis of commercial games emphasizing computerized games. Critical analysis of studies and pertinent scientific research. Emphasis on the role of the adult in children's games.

3 credits

EDUC 4250 PLANNING STUDENT ACTIVITIES IN THE SECONDARY SCHOOL
Problems, practices, controversies and current trends related to sponsoring, directing and supervising student activities in the intermediate and secondary school. Objectives and organization of student councils, homerooms, clubs, school publications, assemblies, literary and oratory contests, and other student activities are studied as integrating factors in the general program of instruction.

3 credits

EDUC 4510 PRINCIPLES OF ADULT STUDENT EDUCATION
Discussion of concepts, theories, approaches, principles and trends in the education of adults and their implications in the adult teaching-learning process.

3 credits

EDUC 4520 SOCIO CULTURAL -FOUNDATIONS OF ADULT EDUCATION
Discussion of the principle socio cultural factors affecting the education of the adult student and their implications for the teaching-learning process.

3 credits

EDUC 4530 PSYCHOLOGY OF THE ADULT LEARNER
Discussion and analysis of the principle theories of development, growth and learning of the adult and the implications of these for teaching adults.

3 credits

EDUC 4540 ADULT STUDENT TEACHING METHODS
Application of proper methods, techniques, strategies and activities for teaching the adult student. Includes the use of the computer.

3 credits

EDUC 4550 EVALUATION OF LEARNING OF THE ADULT STUDENT
Discussion and application of assessment techniques for the formative evaluation of adult student learning. Includes the use of the computer for simple statistical analyses.

3 credits

EDUC 4551 INTEGRATION OF BASIC KNOWLEDGE AND COMMUNICATION SKILLS
Integration of basic knowledge and communication skills for the would-be teacher. Requires that students spend additional time outside the school schedule to complete the course modules. Students must take and pass a final comprehensive examination with a minimum score determined by the University. Prerequisites: GESP 2203; GEEN 1103 or 1203 or 2313; GEIC 1010; GEMA 1000 or 1002 or 1200; GEPE 3010 or 3020; GEHS 2010, 3020, 4020 and 4030; and GEST 2020 or 3030. Requires authorization of the academic department. Grade: P/NP.

1 credit

EDUC 4552 INTEGRATION OF PROFESSIONAL SKILLS
Integration of the pedagogical skills for the would-be teacher. Includes the analysis of teaching situations in agreement with the educational level. Requires that students spend additional time outside the school schedule to complete the course modules. Students must take and pass a final comprehensive examination with a minimum score determined by the University. Prerequisites: Have passed the Core Course Requirements of the major, except the courses of Clinical Experiences in the Educational Scenario, and have the authorization of the academic department. Grade: P/NP.

1 credit

Courses in Educational Computing (ECMP)

ECMP 1010 FOUNDATIONS OF EDUCATIONAL TECHNOLOGY
Study of the historical and theoretical foundations of the fields of educational technology and educational computation emphasizing their impact on the teaching-learning process. Study of research done on the applications of the theories studied. Study of the theoretical principles of artificial intelligence, human-computer interaction and virtual reality regarding their implications on learning. Analysis of the National Standards of Educational Technology in regard to their implications in the teaching-learning process.

1 credit

ECMP 2070 INFORMATION AND TELECOMMUNICATIONS TECHNOLOGIES
Fundamentals of data communication, telecommunications and their relation with the world of information science. Analysis of classifications and topologies; design and implementation of networks for data communication. Study of distributed processing and communication protocols. Methods of evaluating data communication network equipment and software.

3 credits

ECMP 2090 INTRODUCTION TO COMPUTERIZED GRAPHIC DESIGN
Introduction to the basic techniques of design and edition of computerized graphs. Discussion of computerized graphic design as a means of visual communication. Study of the principles of the theory of color, light and shade and of their properties in different contexts. Principles of typography as an essential element of visual communication. Theory, planning and elaboration of interfaces and multidirectional composition. Requires additional time in the laboratory.

3 credits

ECMP 3050 DESIGN AND IMPLEMENTATION OF DISTANCE LEARNING
Application of learning principles in the design and development of distance learning experiences with emphasis on constructivist approaches. Study of the historical and theoretical foundations of distance learning. Discussion of subjects related to publication rights and public regulations and policy regarding the design and implementation of distance learning. Discussion of the scope of different distance learning technologies on learning. Study of cultural impact on the design and implementation of distance learning experiences. Requires additional time in a laboratory.

3 credits

ECMP 4010 ADMINISTRATION OF COMPUTER LABORATORIES
Study of fundamental aspects for the administration of a computers laboratory in a school environment. Use of models that facilitate the administration of a computer laboratory. Techniques and management of application program installation processes, preventive maintenance of equipment, and configuration of computer hardware. Diagnosis and solution of problems related to the operation of computer equipment.

3 credits

ECMP 4020 COMPUTER ASSISTED CURRICULAR DESIGN
Design of computerized interactive instructional modules. Analysis of theoretical foundations and models of curricular design. Study of the implications of the incorporation of the computer in curricular design. Emphasis on articulation of curricular design with the Standards of Excellence of the Department of Puerto Rico.

3 credits

Courses in Educational Cooperation (EDCO)

EDCO 2000 SEMINAR IN EDUCATIONAL COOPERATION
Different techniques for obtaining and keeping employment. Orientation on the different types of organizations in the world of the labor market and the nature of different professions. Analysis of activities to be performed in the workplace. Interpersonal relations, personal appearance and qualities.

1 credit

EDCO 3001, 3002 EDUCATIONAL COOPERATION I, II
Work experience integrating theory with practice. Students will complete 145 hours in a workplace with a minimum of 10 hours weekly. Training and supervision in the activities performed. Prerequisite: EDCO 2000.

3 credits per course

Courses in Electronic Commerce (ECOM)

ECOM 1210 INTRODUCTION TO ELECTRONIC COMMERCE
Study of the basic elements of electronic commerce, factors that trigger development, and necessary technology to implement them. Discussion of the models of electronic commerce markets, their relation with the traditional markets, electronic commerce suppliers and their components: distribution chain management, enterprise resources management, and relationship marketing. Prerequisites: GEIC 1010, MKTG 1210, BADM 1900.

3 credits

ECOM 2301 ELECTRONIC COMMERCE TECHNICAL INFRASTRUCTURE I
Study of the protocols used in Internet, transmission options, components, access and security equipment. Discussion of the legal aspects related to hiring, protection and confidentiality of user databases. Prerequisite: ECOM 1210.

3 credits

ECOM 2302 ELECTRONIC COMMERCE TECHNICAL INFRASTRUCTURE II
Application of the basic principles for designing a WEB page for a company. Study of the administration of a WEB page. Forty-five hours of lecture-lab. Prerequisite: ECOM 2301.

3 credits

Courses in Electronics Technology (ELTE)

ELTE 2210 COMMUNICATIONS TECHNOLOGY
Fundamental concepts of communication systems. Transmission and reception of AM, FM and television signals. Wave transmission, antennas, optical fiber and microwave communication systems. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 2351.

4 credits

ELTE 2250 INSTRUMENTATION TECHNOLOGY
Fundamental concepts of loopback industrial control systems. This includes characteristics of transducers, preparation of the analogous control signal, processing of the signal in the controller, final control of the deviation of parameter under control and the connection between the different components of the control system. Requires 45 hours of lecture and 45 hours of lab. Corequisite: ELEC 3490.

4 credits

ELTE 2590 TECHNOLOGY CONTROL
Introduction to the terminology, concepts, principles, procedures, and computation used by technicians to analyze, select, specify, design and maintain control systems. Discussion of fundamental concepts of open and loopback systems, characteristics of the processes and discussion of the control manner selection. Study of final cycle methods and reaction of the process for controller design. Emphasis on the application of the methods established with the aid of computer programs. Requires 45 hours of lecture and 45 hours of lab. Corequisite: ELEC 3490.

4 credits

ELTE 2910 PRACTICE IN INDUSTRY
Practical experience in industry or an agency of government where the student will have the opportunity to use the knowledge and skills acquired to solve problems related to electronics. A written report based on this practical experience must be turned in by the student upon completing the academic term. A faculty member will supervise the student's practical experience. The student must complete at least 160 hours of practical experience. Corequisite: ELEC 3490.

4 credits

Courses in Electronics Technology and Electrical Power (ELEC)

ELEC 2120 INDUSTRIAL SAFETY
Regulations related to the Occupational Safety and Health Act (OSHA). Safety in ambulatory and work areas, mechanical platforms, elevators, dangerous materials, equipment for personnel protection against fires, compressed air and gas equipment, working with machine protectors, manual and electrical tools and first aid.

2 credits

ELEC 2140 ELECTRICAL LAWS AND CODES
Interpretation of the National Electrical Code and the rules that apply to electrical systems. Emphasis on topics related to typical electrical systems in businesses, residences and industries. Prerequisite: ELEC 2120.

3 credits

ELEC 2170 ELECTRONIC DRAWING
Introduction to computer aided drawing (CAD). Layers, line types, units and dimensioning. Block diagrams, schematic diagrams and printed circuit board (PCB). Introduction to computer aided simulation and computer aided instrumentation. Requires 30 hours of lecture and 45 hours of lab. Additional time in an open lab is required.

3 credits

ELEC 2351 ELECTRIC CIRCUITS I
Circuit variables. Circuit elements. Simple resistive circuits. Techniques of circuit analysis. Inductance and capacitance. Response of first-order RL and RC circuits. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: MATH 1500.

4 credits

ELEC 2352 ELECTRIC CIRCUITS II
Sinusoidal steady-state analysis. Sinusoidal steady-state power calculations. Balanced tri-phase circuits. Mutual inductance. Series and parallel resonant circuits. Introduction to Laplace Transform. Transfer functions. Two-port circuits. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 2351.

4 credits

ELEC 2410 LIGHTING
Study of the basic principles of selecting and installing artificial light. Discussion of the different factors that affect lighting and the ways to produce artificial light. Prerequisite: ELEC 2351.

3 credits

ELEC 2430 READING ELECTRICAL LOADS AND PLANS
Interpretation of electrical plans for power, lighting system, itineraries and details as they apply to industrial facilities, businesses, residential facilities and others. Study of electrical energy in accord with the National Electrical Code guidelines. Prerequisite: ELEC 2351.

3 credits

ELEC 2520 ELECTRICAL MACHINES AND TRANSFORMERS
Study of the elementary concepts of magnetic circuits and of direct current (DC) and alternate current (AC) engines. Discussion of rotating engines and transformers. Prerequisite: ELEC 2351.

3 credits

ELEC 2530 ELECTRICAL CONTROLS
Study of the operation and application of the following basic devices in typical facilities: switches, relays, starter motors and Variable Frequency Drivers (VFD). Prerequisite: ELEC 2520.

3 credits

ELEC2540 LOGIC CONTROLLERS FOR POWER
Study of electromechanical relays, step diagrams, basic concepts, programming and application of logic controllers. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: ELEC 2530.

3 credits

ELEC 2915 PROFESSIONAL PRACTICE
Practical experience in industry, private companies or government agencies under the direct supervision of a coordinator of the practice scenario and a member of the faculty, where the student will apply the acquired knowledge and skills to solve problems related to electrical power. Requires 120 hours of practical experience. Prerequisites: Have passed a minimum of 25 credits in the major and the authorization of the program director or coordinator.

3 credits

ELEC 3141 LOGIC CIRCUITS I
Analysis of combinational and sequential digital circuits from mathematical logic to physical implementation including truth tables for the different gates, methods for analysis of logic circuits such as Boolean Algebra, Karnaugh Maps, Quine Method, etc. The electronic properties and characteristics of the family of integrated logic circuits in common use are studied. Emphasis on TTL and CMOS. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: MATH 1500.

4 credits

ELEC 3142 LOGIC CIRCUITS II
Study and analysis of the different families of logic bipolar circuits (DTL, TTL, ECL, 12L, DCTL) and unipolar circuits (NMOS, PMOS, CMOS, GAAS) and interphase methods between them, large scale integration circuits (LSI VLSI) and their application, arrangements of programmable logic (PAL or PLA), memories (ROM, RAM, PROM, EPROM, EEPROM), analog-digital and D/A digital-analog conversion and integrated digital circuits of specific application (ASIC/ASDIC). Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 3141.

4 credits

ELEC 3191 ELECTRONIC CIRCUITS I
Characteristics of solid-state devices; diodes, semiconductors, bipolar transistors, bias and stability of transistor circuits, amplifier design; rectifiers and filters. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 2351.

4 credits

ELEC 3192 ELECTRONICS CIRCUITS II
Analysis of small signal and large signal circuits. Field-effect transistors (FET). Analysis and design of low, high and medium frequency amplifiers. Linear integrated circuits, feedback amplifiers and active filters. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 3191.

4 credits

ELEC 3420 ELECTRICAL SYSTEMS
Establishing the principles of electrical protection (personnel and equipment). Introduction to magnetic materials and properties followed by analysis of transformers and induction motors. Application of circuit analysis principles to calculate real, reactive and apparent power in both single-phase and tri-phase systems. Motor control devices and programmable logic controller input and output devices. Basic concepts of the use of communication for the control of power systems. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 2352.

4 credits

ELEC 3490 INDUSTRIAL ELECTRONICS
Theory and practical study of electronic circuits and the procedures and processes used in the electronics industry. Fundamentals of the theory and application of control and integrated circuits, electrical temperature sensing, flow meters and displacement flow meters, principles of programmable controllers and operational amplifiers applications. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEC 2352, 3191.

4 credits

ELEC 3974 SOLAR ENERGY
Study of the general concepts, development and application of the photovoltaic systems. Includes the characteristics of the solar cells, the components of a solar energy system and the regulations for its installation. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: ELEC 3191.

4 credits

ELEC 4050 INSTRUMENTATION
Transducers in electronic measurement systems. Characteristics of transducers and measurement techniques. Basic concepts related to sensors and their application to the measurement of acceleration, displacement, flow, force, torsion, pressure, temperature, etc. are also discussed. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 3490.

4 credits

ELEC 4080 OPERATIONAL AMPLIFIERS
Detailed study of the characteristics, uses, limitations and design of operational amplifiers. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 3192.

4 credits

ELEC 4140 MICROPROCESSORS
Introduction to the basic organization, addressing modes, assembly language, basic instruction set, simple software examples, macros and interrupts, different types of interfacing. The laboratory will provide practical experience on software applications and interfacing. Topics include the study of a particular architecture and its corresponding instruction set, assembly language techniques, control signals and I/O structures, memory design, interrupts and interrupt process. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 3141.

4 credits

ELEC 4211 COMMUNICATIONS I
Resonant circuits. Basic principles of communication, modulation, transmission and reception of AM, SSB, DSB, FM. Sampling and reconstruction of FDM signals. Communication systems block diagrams. Noise effects on communication. Examples of communication systems. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEC 2352, 3191.

4 credits

ELEC 4212 COMMUNICATIONS II
Impedance matching, transmission lines. Use of the Smith Chart Y and S parameters. High frequency equivalent circuits of transistors. Radio frequency amplifiers. Radio frequency filters. Introduction to wave propagation and antennas. Network communications. Introduction to microwave engineering. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 4211.

4 credits

ELEC 4215 TELECOMMUNICATIONS NETWORKS
Introduction to existing telecommunication networks and their standards and protocols. Voice and data architecture, open networks, ISDN, open layer, data transport protocols and local and wide area networks. Study of data transport media such as cellular networks, satellite and telephone systems. Optimization and modeling of telecommunication networks will also be discussed. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 4211.

4 credits

ELEC 4390 CONTROL SYSTEMS TECHNOLOGY
Introduction to basic concepts of a control system: feedback theory and transfer function concept. Study of control modes: proportional, integral and derivative and their combinations. Basic control systems' components: mechanics, electro mechanics and electronics are also presented. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEC 3192, 3490.

4 credits

ELEC 4440 LOGICAL PROGRAMMABLE CONTROLLERS
Introduction to the characteristics and applications of PLC (Programmable Logic Controllers). Identification of common features of programmable controllers, i.e. Description of the CPU, functionality of I/O modules, organization of memory structure, organization of the data table. Interpretation of various control instructions, i.e., timer instructions (TON, TOFF), counter instructions, sequencers and mathematical instructions. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 3192.

4 credits

ELEC 4450 ROBOTICS AND AUTOMATION
Basics of industrial robotics. Manipulators, actuators, end effectors and controllers. Industrial robots classification. Internal and external sensors theory. Industrial robots kinematics and dynamic control models and techniques. Computerized vision systems. Robot languages and intelligence. Robots application to manufacturing industrial processes. Introduction to automation concepts and techniques. Sequential processes control. Automation of continuous and discrete processes. Automation programs, CAD, CAM, CIM and simulators. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEC 4390.

4 credits

ELEC 4910 PROFESSIONAL PRACTICE
Practical experience in the appropriate environment of an industrial or governmental organization to reinforce the applicability of acquired knowledge, and prepare the student for the world of work. Minimum of 160 hours is required. Prerequisite: Approval of the instructor in charge of supervising the practice.

4 credits

Courses in Engineering (General) (ENGR)

ENGR 1100 INTRODUCTION TO ENGINEERING
Study of the development of engineering as a profession and its social function. Emphasis on the social and professional responsibility of an engineer. Study of the engineering code of ethics, including the discussion of real cases. Analysis of critical thinking and development of creativity. Application of engineering tools for the solution of problems. Discussion of technology and engineering and of the challenges of the engineering profession for the future.

3 credits

ENGR 2120 INTRODUCTION TO ENGINEERING COMPUTING
Introduction to engineering problem solving using modern computer tools. Design and implementation of algorithms using a high level language program. Requires programming projects where applications and practical problems of the different engineering disciplines will be introduced. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: MATH 1500, ENGR 1100 and GEIC 1010.

4 credits

ENGR 2220 COMPUTERIZED ENGINEERING GRAPHICS
Study of graphical terminology. Analysis and solution of spatial problems. Discussion of symbols and standards applied to engineering. Study of computer graphics: equipment and programming. Use of geometric elements in two and three dimensions in computer graphics. Analysis of object visibility. Application of programs for computer-aided design commonly used in engineering. Prerequisites: GEMA 1200, GEIC 1010.

3 credits

ENGR 3200 PROBABILITY AND STATISTICS
Set analysis, study of combinations and repeated attempts. Application of probability functions for discreet random variables and probability density functions for continuous random variables. Analysis of the expected value for functions of random variables and the central limit theorem. Study of sampling statistics and its distributions. Includes central trend measurements and dispersion, points and intervals estimation, hypothesis tests, linear regression and correlation. Prerequisite: MATH 2251.

3 credits

ENGR 3300 ENGINEERING ECONOMICS
Economic analysis related to decision making in engineering projects where time and money are the priority factors. Includes cost theory, discounted cash flows, comparison of alternatives using equivalent annual costs, present value and rate of return on investments; analysis of the break-even point, depreciation, effects of income tax rates, equipment replacement, risk and sensitivity analysis. Prerequisite: ENGR 3200.

3 credits

ENGR 3340 FOUNDATIONS OF STATICS AND DYNAMICS
Analysis of force systems and the application of the law of equilibrium to particles and rigid bodies. Analysis of structural systems including internal forces and friction. Calculation of gravity centers, centroids. Analysis of kinetics and kinematics of particles and rigid bodies. Discussion of vibratory systems. Prerequisite: PHYS 3311.

3 credits

ENGR 3343 THERMAL AND FLUID SCIENCES
Study of the fundamental concepts of thermodynamics, mechanics of fluids and heat transfer. Application of the first and second law of thermodynamics in closed and open systems. Evaluation of power cycles and refrigeration. Study of fluid statics. Analysis of energy equations, amount of momentum and mass. Evaluation of the flow in pipes and calculation of losses. Analysis of heat transfer by conduction. Prerequisites: PHYS 3312, CHEM 2115.

4 credits

ENGR 3350 MATERIALS SCIENCE
Study of materials. Includes atomic bonds, crystalline structure, imperfections, diffusion process and the mechanical, thermal, electrical and magnetic behavior of metals, polymers, ceramic and compounds. Emphasis on the elasticity, plasticity, yielding and fatigue. Discussion of diagrams of phase balance, microstructures and corrosion of metals. Prerequisites: PHYS 3312, CHEM 2115.

3 credits

ENGR 3360 FUNDAMENTALS OF ELECTRONICS
Study and analysis of electrical circuits. Includes circuit elements, elementary network theory, differential equations of transitory circuits, circuit dynamics and permanent sinusoidal response of circuits, three-phase circuits and power. Discussion of electronic concepts. Emphasis on electronic control devices and semi conducting electronic circuits. Discussion of digital systems: binary logic, simplification of logical functions and components of digital systems. Analysis of electromechanical systems. Includes theory, magnetic circuits, transformers, and conversion of electromechanical energy. Prerequisites: PHYS 3312, MATH 3400.

4 credits

ENGR 3500 PROFESSIONAL ETHICS FOR ENGINEERS
Analysis of the implications of laws, regulations and canons of ethics applicable to the practice of engineering in the public and private sector. Study and discussion of cases. Evaluation of risk, economic impact, ethics to alert authorities of decisions that may cause danger. Evaluation also of health and public well-being considering legal and environmental implications, privacy, professional and entrepreneurial responsibility. Prerequisites: ENGR 3300, GEPE 4040.

2 credits

Courses in Electrical Engineering (ELEN)

ELEN 3301 ELECTRIC CIRCUITS I
Study of the voltage-current characteristics for passive elements of independent and dependant sources and the laws of Kirchhoff. Use of circuit analysis techniques: mesh currents, node voltage, source transformations, Thevenin and Norton theorems and superposition. Study of capacitors, inductors and mutual inductance. Analysis of the natural response and circuits step RC, RL and RLC. Introduction to alternate current sources and the effective value. Emphasis on mathematical analysis and corresponding designs. Analysis of circuits using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: PHYS 3312.

4 credits

ELEN 3302 ELECTRIC CIRCUITS II
Analysis of circuits using fasors. Analysis of power. Use of the Laplace transform techniques to analyze linear circuits with and without initial conditions. Two port circuit characterization based on impedance, admittance and function parameters of transfer. Passive filter design. Analysis of circuits using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3301, MATH 3400.

4 credits

ELEN 3311 ELECTRONICS I
Study of the semi conducting materials and their properties. Analysis and design of power supply. Analysis of bipolar circuits that contain diodes, bipolar transistors and field effect transistors. Analysis and considerations of simple and multiple stage amplifier design. Analysis of operational amplifiers. Design of electronic circuits using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3301.

4 credits

ELEN 3312 ELECTRONICS II
Analysis of frequency response to amplifiers. Study of feedback effect on amplifiers. Design of amplifiers with feedback and of oscillators. Analysis and design of active filters. Study of digital logic circuits. Design of electronic circuits using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3311, 3302.

4 credits

ELEN 3320 LOGIC CIRCUITS
Study of Boolean algebra theorems and postulates. Simplification of logic gatesusing minimization techniques. Combinational circuits design including arithmetic circuits and regular structures, sequential circuit design including machines of finite state. Study of microprocessors functional blocks. Logic circuit design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3301.

4 credits

ELEN 3322 LOGIC CIRCUITS II
Design of Boolean logic and finite state machine. Standard SSI, MSI, and LSI parts. Drawing standards, dependency notation. Implementation with different logic families, mainly TTL and MOS. Synchronous system design, ALU, memory; analysis and synthesis of D, JK, and T flip flops based sequential circuits; Mealy and Moore models of sequential circuits. Functional blocks in microprocessors. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3321.

4 credits

ELEN 3351 ELECTROMAGNETIC I
Study and applications of electromagnetism. Vectorial analysis in Cartesian, cylindrical and spherical systems. Discussion of the electrical and magnetic properties of dielectric, conductive and magnetic materials. Analysis of the electromagnetic field behavior in materials. Analysis of the relation between electromagnetic fields with force and torque. Explanation of the laws of Coulomb, Biot-Savart and Maxwell equations for static fields. Prerequisites: ELEN 3301, MATH 3250.

3 credits

ELEN 3352 ELECTROMAGNETICS II
Study of the Maxwell equations for dynamic fields. Analysis of electromagnetic wave propagation in lines of communication; and of electromagnetic wave propagation in conductive and dielectrics medium with and without losses. Includes the study of transmission, reflection and refraction of electromagnetic waves for normal and slant incidence. Study of antennas and their characteristics such as irradiation pattern, gain and efficiency. Importance of the equation of Friss for communication systems via satellite and radars. Prerequisite: ELEN 3351.

3 credits

ELEN 3420 SIGNALS AND SYSTEMS
Study and classification of signals and systems. Analysis of systems in continuous or discrete time domain. Analysis of systems in the discreet time domain by means of the Z transform. Linear system analysis in continuous time by the Fourier series and transform. Systems analysis using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3302.

4 credits

ELEN 4010 MICROCONTROLLERS
Study of the organization and architecture of microcontrollers, relations of time and handling of memory. Development of systems based on microcontroller and integrated systems. Interconnections of the microcontroller to peripheral devices, entrance and exit ports and their programming. Emphasis in the design of integrated systems. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3311, 3320 and ENGR 2120 or COEN 2210.

4 credits

ELEN 4327 MEASUREMENTS AND INSTRUMENTATION
Study of the measurement systems characteristics and their applications. Analysis of data acquisition systems. Circuit design for preparation of analog and digital signals. Design of instrumentation systems using different types of sensors. Measurement systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3312.

4 credits

ELEN 4351 POWER SYSTEMS ANALYSIS I
Analysis of power systems, parameters of transmission lines and systems models. Study of three-phase power systems, complex power and power factor. Study of the ideal transformer and behavior in the steady state. Includes the voltage regulation and symmetrical components. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3302.

4 credits

ELEN 4352 POWER SYSTEMS ANALYSIS II
Study of network calculations and power flow analysis. Includes study of faults, network sequences and stability in power systems. Analysis of the economic operation of a power system, the matrices of admittance and impedance and the use of computer programs for analysis of load flow and protection against failure of the power systems. Requires 45 hours of lecture and 45 hours of lab. Prerequisite : ELEN 4351.

4 credits

ELEN 4355 ELECTRICAL SYSTEMS DESIGN
Analysis and design of distribution systems. Use of the National Electrical Code in the design process. Study of load characteristics, transformers, voltage drop calculations and systems protection. Design of lighting systems. Requires 45 hours of lecture and 45 hours of lab. Prerequisite : ELEN 4351.

4 credits

ELEN 4357 INDUSTRIAL POWER SYSTEMS DESIGN
Design of industrial power systems with emphasis on the aspects of planning and protection, the system characteristics, and its components and the installation systems. Prerequisites: ELEN 4351, 4385.

3 credits

ELEN 4363 DISTRIBUTED GENERATION
Analysis of the characteristics of the technology used as a source of distributed generation and its integration to the electrical power network. Prerequisite: ELEN 4351.

4 credits

ELEN 4385 ELECTRIC MACHINERY
Study of electromechanical energy conversion. Analysis of magnetic circuits. Study of single-phase and three-phase AC machines. Analysis of electric motors of induction, synchronous electric motors and generator, and DC motors and generators. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4351.

4 credits

ELEN 4413 ANALOG FILTER DESIGN
Analysis of design techniques and applications of passive and active analog filters. Design of passive and active filters using Butterworth, Chebyshev and Ecliptic transfer functions. Implementation of passive and active filters. Performance of active and passive filters. Analog filter design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3312.

4 credits

ELEN 4414 ELECTRONIC DESIGN
Analysis and design of the basic configurations of operational amplifiers, converters of voltage to current and current to voltage, instrumentation amplifier and active filters. Study of DC and AC limitations of an operational amplifier. Linear and non-linear circuit design using operational amplifiers such as signal generators of analog to digital and digital to analog converters. Electronic circuit design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3312.

4 credits

ELEN 4415 POWER ELECTRONICS
Analysis of the general laws and the limitations in power electronic circuits, commutation characteristics, generic converters topologies and their operation principles, desirable commutation trajectory, and snubber circuits. Electronic power circuit design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3312.

4 credits

ELEN 4509 CONTROL SYSTEMS
Definition and types of control systems. Analysis and design of control systems in continuous time, through their mathematical models. Study of the modern and conventional theory of control systems using state variables. Representation of systems by block diagrams and reograms. Study of the characteristics of control systems. Design using the geometric root locus, frequency response and applications. Systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3312, 3420.

4 credits

ELEN 4513 DIGITAL CONTROL SYSTEMS
Analysis and design of control systems in discrete time, digital control systems. Study of the Zeta (z) transform. Analysis of systems in discrete time in the Z plane. Analysis in the spatial state. Design of digital control systems using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

ELEN 4514 ROBOTICS
Analysis of the kinematics, dynamics and control of robotic manipulators. Design and programming of robotic manipulators. Robot applications, in industry, medicine and other areas. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

ELEN 4515 PROCESS CONTROL
Analysis, simulation and design of control processes using the computer. Study of the process models. Systems analysis and design using state variables. Applications of the control process. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

ELEN 4516 COMPUTER AIDED CONTROL SYSTEM DESIGN
Automated control system design using specialized programs. Study of the physical and mathematical system models. Controller design. Analysis by practical methods and aspects of systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

ELEN 4517 NEURONAL NETWORKS APPLIED TO CONTROL SYSTEMS
Study of the foundations of neuronal networks and the learning processes. Analysis of perceptron networks of one and multiple layers. Study of the basic functions of neuronal networks. Applications of control systems using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

ELEN 4518 AUTOMATION
Study of the technology, programming, theory and applications of industrial robots. Design of discrete process control systems by means of programmable logic controllers. Study and application of industrial sensors in the automation of discrete processes. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

ELEN 4610 ANALOG COMMUNICATION
Study of the representation of signals using the Fourier series and transform. Study of amplitude and angle type modulation. Analysis of bandwidth importance in a modulated signal. Study of noise, distortion and interference in communication systems. Explanation of the theorem of Nyquist and introduction to pulse type modulation. Introduction to digital communication. Communication systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3420.

4 credits

ELEN 4611 MICROWAVE AND RADIO FREQUENCY ENGINEERING I
Study of the behavior of discrete, distributed and active elements in high frequencies. Characterization of transmission lines based on characteristic impedance, reflection coefficient, electrical length and stationary waves. Design of connecting networks using the Smith Chart. Analysis of microwave circuits using the two port circuit theory and flow charts. Design of narrow band microwave and amplifier filters. Implementation of microwave circuits using micro tapes and discrete elements. Design of radio frequency and microwave systems using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3352, 4610.

4 credits

ELEN 4612 MICROWAVE AND RADIO FREQUENCY ENGINEERING II
Design of directional couplers, power splitters, low noise amplifiers, ample band amplifiers, power amplifiers, oscillators, resonators and mixers. Analysis of noise effect on microwave systems. Design and implementation of microwave circuits using techniques of computer aided design (CAD). Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4611.

4 credits

ELEN 4613 OPTICAL COMMUNICATIONS
Analysis of the advantages of the optical communication systems versus the electrical transmission of data, and of the parameters that affect the speed of data transmission. Study of the modes of propagation, light sources, light detection circuits, and types of optical fiber. Analysis of the modulation of light for data transmission in analog and digital form. Design of optical communication systems using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3352, 4610.

4 credits

ELEN 4614 DIGITAL COMMUNICATION
Discussion of pulse code modulation (PCM) and Mary modulation. Analysis of modulation, demodulation and detection of baseband and bandpass signals. Analysis of the parameters that affect binary signals and of multiple levels such as the error probability, additive Gaussian noise, interference and distortion. Comparison of the Amplitude Shift-Keying, Frequency Shift-Keying, Phase shift-keying and Amplitude Phase Keying modulations. Analysis of the codification formats. Analysis of power in a system using Link Budget Analysis. Communication systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4610.

4 credits

ELEN 4615 DIGITAL SIGNAL PROCESSING
Analysis of continuous and discrete signals in time and frequency domain. Image, voice and arrangement processing and its implementation using software and hardware. Emphasis on the integration of the digital processing of signals concepts in a design environment. Digital signal processing systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4610.

4 credits

ELEN 4616 DESIGN OF ANTENNAS
Study of the relation of electromagnetic energy with antennas. Analysis of the patterns of irradiation and distribution of current. Analysis of antenna efficiency in terms of irradiation pattern, beam width, directivity, polarization, effective area and power density. Design of antennas using the integrals of irradiation and auxiliary potential functions. Study of dipole, circular and bow antenna, biconical antenna, log-periodic, horn antenna, reflecting antenna and micro strip antenna. Analysis of antennas behavior in the presence of ground plane and earth curvature. Design of antenna arrangements. Explanation of measurement techniques. Design of antenna systems using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3352, 4610.

4 credits

ELEN 4617 DATA COMMUNICATIONS NETWORKS
Study of the ISO reference model. Analysis of electrical interface, data transmission, error control, and data transmission protocols. Study of communication technologies including Local Area Networks, Broadband Area Networks, and packed switching. Study of the functioning of bridges, routers, switches, circuit switched networks, Asynchronous Transfer Mode (ATM), and virtual circuit. Design of networks. Data networks simulation using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4610.

4 credits

ELEN 4618 WIRELESS AND CELLULAR COMMUNICATION
Integration of the fundamental concepts of wireless communication systems such as: personal communication systems (PCS), cellular, wireless networks for computerized systems, call processing, frequency reuse, losses in propagation, CDMA systems, fading reduction methods, techniques for error correction and multipath. Discussion of several access methods, such as: FDMA, TDMA and CDMA. Simulations of different modulation architectures using computer applications. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4610.

4 credits

ELEN 4810 PROJECT DESIGN IN ELECTRICAL ENGINEERING
Design of electronic systems in accord with a specific project applicable to industry that students will undertake, putting into practice what they have learned in the major and submajor courses. Prerequisites: Have approved 140 credits of the baccalaureate, among which are four credits of the submajor.

3 credits

ELEN 4811 DESIGN PROJECT IN ELECTRICAL ENGINEERING AND COMPUTERS I
Experience in design and integration of knowledge acquired in the development or design of some device, system or process. Development of skills in multidisciplinary teamwork, in organization and effective communication. Review of the preliminary design where the viability of the project is assured. Requires 15 hours of lecture and 30 hours of lab. Prerequisites for electrical engineering students: ELEN 4010, 4327, 4509 and 4610. Prerequisites for of computer engineering students: ELEN 4010, 4610 and COEN 3410.

2 credits

ELEN 4812 DESIGN PROJECT IN ELECTRICAL ENGINEERING AND COMPUTERS II
Continuation of the design and presentation of the device, system or product. Includes the implementation or the simulation of the device, system or product, as the case may be. Requires 45 hours of closed lab. Prerequisite: ELEN 4811.

1 credit

ELEN 4910 ELECTRICAL ENGINEERING PRACTICAL EXPERIENCE
Supervised electrical engineering practical experience in the industry or government agency. A comprehensive report must be submitted at the end of the term based on the electrical engineering practical experience. A faculty member will supervise the practical experience of the student. The student must complete at least 160 hours of practical experience. Prerequisites: Have passed the electrical engineering courses corresponding to the fourth year in the Electrical Engineering curriculum; be admitted to a company related to electrical engineering and have the approval of the supervisor professor.

4 credits

Courses in English (ENGL)

ENGL 2054 SPEECH WORKSHOP
Emphasis on pronunciation, syntax and intonation through oral practice and laboratory training. For non-native speakers of English.

3 credits

ENGL 2060 CONVERSATION AND GRAMMAR REVIEW
Development of oral expression by discussion of current events and daily life. Practice in pronunciation and oral comprehension. Grammar review stressing oral expression. Systematic study of vocabulary and common idiomatic expressions. Prerequisite: 9 credits in English.

3 credits

ENGL 2075 TECHNICAL LITERATURE
Selected technical literature is studied in terms of structure and content. Emphasis on the preparation and use of technical reports.

3 credits

ENGL 2076 READING AND WRITING OF TECHNICAL TEXTS
Analysis of academic texts such as textbooks, professional journals and literature available on line and used in content courses; practice of reading and writing strategies of required specialized technical texts; workshops using the computer as a work tool.

3 credits

ENGL 2086 BUSINESS ENGLISH
Fundamentals of grammar, sentence structure, punctuation, spelling, and vocabulary building; practice in writing business communications.

3 credits

ENGL 3007 ADVANCED COMPOSITION
Emphasis on the development of formal literary style suitable for expository and argumentative writing. Prerequisite: GEEN 2311.

3 credits

ENGL 3025 WRITING OF PROFESSIONAL DOCUMENTS
Theory and practice of professional writing techniques. Emphasis on the type of written communication mostly used in different work scenarios. Writing of reports, proposals and correspondence. Use of the computer in writing professional documents. Review of the grammatical structure of English in context.

3 credits

ENGL 3030 TECHNICAL-SCIENTIFIC WRITING IN SCIENCES
Development of skills in technical-scientific writing. Emphasis on research techniques, technical reports and publications of scientific findings. Prerequisite: Have passed nine (9) credits in English at the corresponding level with a minimum grade of C.

3 credits

ENGL 3073 INTRODUCTION TO LINGUISTICS
Understanding language as a human expression. The focus is on theories of language, including the fundamental concepts of phonology, morphology, syntax, lexicon, and semantics.

3 credits

ENGL 3310 ADVANCED ORAL COMMUNICATION
Understanding, development and practice of skills for the preparation and presentation of lectures, reports and other oral communication activities. Development of critical ability in oral comprehension. Improvement of pronunciation.

3 credits

ENGL 3320 FUNDAMENTALS OF GRAMMAR
Descriptive analysis of the morphology and syntax of English and their application in the classroom. Prerequisite: ENGL 3073.

3 credits

ENGL 3325 FUNDAMENTALS OF PHONETICS
The production and perception of the phonetic and phonemic systems of United States English. Techniques and methods used to correct deficiencies in pronunciation and their application in the classroom. Requires 45 hours of lecture and 15 hours of lab. Prerequisite: ENGL 3073.

3 credits

ENGL 3330 COMPARATIVE ANALYSIS OF ENGLISH AND SPANISH
Description and comparison of phonetics, morphology, syntax, semantics, and lexicon of English and Spanish. Analysis of their implications in the teaching of English as a second language. Prerequisite: ENGL 3073.

3 credits

ENGL 3350 ANALYSIS OF LITERARY GENRES
Methods of analysis and interpretation of novels, short stories, poetry, and drama. Prerequisite: GEEN 2312.

3 credits

ENGL 3400 LITERATURE FOR ADOLESCENTS
Study and analysis of literature intended for adolescents and the criteria used in its selection in the teaching of English as a second language.

3 credits

ENGL 3410 ANALYSIS OF MAJOR NORTH AMERICAN AUTHORS
Reading and analysis of major North American authors, including the evolution of their ideas and literary styles. Prerequisite: ENGL 3350.

3 credits

ENGL 3420 ANALYSIS OF SELECTED WORKS OF BRITISH AUTHORS
Reading and analysis of literary genres of British authors: poetry, essays, theater, short stories, and novels. Study of the evolutionary development of their thought and literary styles. Prerequisite: ENGL 3350.

3 credits

ENGL 3435 PUERTO RICAN VOICES
Study of literature written in English by Puerto Ricans. Review of cultural, social and economic aspects that give origin to individuality as well as to the diversity of their voices.

3 credits

ENGL 3440 CHILDREN'S LITERATURE IN ENGLISH
Study and analysis of literature geared towards the preadolescent reader and the criteria used in its selection in the teaching of English as a second language.

3 credits

ENGL 3510 POPULAR CULTURE
Study of terms, icons and contemporary forms of the popular culture, such as movies, television and texts in multimedia and hypermedia. Analysis of the social and political meaning and the impact of technology on the study of literature and communication.

3 credits

ENGL 3520 CROSS CULTURAL STUDIES
Analysis of readings addressing issues of cultural diversity and interaction. Critical study of cultural themes such as gender, race, ethnic origin and identity through reading and writing.

3 credits

ENGL 3850 THE SHORT STORY
Emphasis on the interpretative analysis of techniques, style and themes through a survey of the short story as a literary genre. Prerequisite: ENGL 3350.

3 credits

ENGL 3863 POETRY
The most important poems from all periods with special emphasis on form and close verbal analysis. Prerequisite: ENGL 3350.

3 credits

ENGL 4000 SHAKESPEARE
The most representative plays illustrating their structure, including the Elizabethan Theater, and Shakespeare's thought and art. Selection of tragedies, comedies, stories and poetry. Prerequisite: ENGL 3350.

3 credits

ENGL 4014 MODERN DRAMA
Reading and discussion of plays, from the late nineteenth century to the present. Prerequisite: ENGL 3350.

3 credits

ENGL 4015 TRANSLATION WORKSHOP
Development of the basic skills for translation of Spanish to English. Use of translated texts to improve English communication. Prerequisite: GEEN 2203 or 2313 passed with a C grade or better.

3 credits

ENGL 4030 CREATIVE WRITING
Theory and practice of thought and writing in its creative aspect. Process and techniques for writing creative texts, such as the story, memoirs, diary, poetry and drama. Preparation of manuscripts.

3 credits

ENGL 4073 ACQUISITION OF ENGLISH AS A SECOND LANGUAGE
Theories of second language acquisition as compared and contrasted to first language acquisition. Variables that affect the acquisition of English as a second language including relative findings in the areas of psychology, sociology, neurolinguistics and anthropology.

3 credits

ENGL 4083 INTRODUCTION TO SOCIOLINGUISTICS
Variations in form and use of language as determined by social situation and socio-cultural group, with special emphasis on English. The rules of discourse and their effects. The difference between what is said and what is meant. Verbal skill and verbal art. Language and identity. Signals that indicate the flaws in communication among members of different socio-cultural groups. Bilingualism.

3 credits

ENGL 4400 THE NOVEL
Interpretative analysis of the techniques, styles and themes in novels as a literary genre. Study of novels written by outstanding, world recognized authors. Prerequisite: ENGL 3350.

3 credits

ENGL 4440 CARIBBEAN VOICES
Study of topics and literary genres of the Caribbean. Analysis of the cultural, historic and artistic roots of the multiple identities of the Caribbean reflected in literature written in English.

3 credits

ENGL 4700 LITERATURE SINCE 1945
Literature written since the end of World War II, emphasizing its literary values from a sociological and philosophical perspective. Prerequisite: ENGL 3350.

3 credits

ENGL 4800 RESEARCH IN ENGLISH
Preparation of a research project in all its phases: selection, organization, presentation and information documentation available through electronic media. Prerequisite: GEIC 1010, GEEN 2313.

3 credits

ENGL 4950 INTEGRATIVE SEMINAR
Integration of the knowledge obtained in the courses of the major. Requires the oral and written presentation of a project paper. Prerequisite: 24 credits in the major.

3 credits

Courses in Entrepreneurial Development (ENDE)

The following entrepreneurial development courses contribute to the preparation of professionals who may offer direct services to society in the field of management and in technical areas for enterprises, industry and business. Courses will be offered for business administration students as well as for students from other majors that wish to take them.

ENDE 1100 INTRODUCTION TO ENTREPRENEURIAL DEVELOPMENT
Introduction to the basic concepts for starting and developing a business. Discussion of legal, financial and personal requirements for establishing a business with emphasis on the planning and elaboration of the business plan.

2 credits

ENDE 3315 FUNDAMENTAL PROCEDURES FOR ESTABLISHING A BUSINESS
Study and analysis of basic procedures for establishing a business. Emphasis on the entrepreneurial vision, type of business entity, a product versus a service enterprise, viability, governmental requirements and sources for financing. Prerequisite: ENDE 1100.

3 credits

ENDE 3316 BUSINESS MANAGEMENT
Integration of basic management principles, marketing and accounting in business management. In the field of management, the organizational structure, functions, job descriptions, assignment of responsibilities and personnel evaluation are included; in the accounting areas, the financial structure of the enterprise and cash management are included and in the field of marketing the market and profile of clientele, the analysis of the competition and marketing strategies are discussed.

3 credits

ENDE 3320 ELECTRONIC COMMERCE IN ENTERPRISE DEVELOPMENT
Study of the theoretical foundations of electronic commerce for the conversion of a presential company to a virtual one, framed in an international commercial environment. Application of the basic Internet tools such as: electronic mail, on-line service evaluation, payment forms and electronic pages related to the entrepreneurial world. Analysis of the electronic purchase and sale process, ethical principles and legal and security aspects in electronic commerce. Requires sixty (60) hours of lecture/lab.

4 credits

Courses in Entrepreneurial and Managerial Development (ENTR)

ENTR 2200 FUNDAMENTALS OF ENTREPRENEURSHIP
Integral study of companies, emphasizing the following topics: their basic principles, their development process or acquisition and the identification of enterprise opportunities in the real world.

3 credits

ENTR 2212 SOCIAL ENTREPRENEURISM
Study of the trends in entrepreneurism that arise from collective actions directed to generate social benefits in organizations for profit, as well as those in the philanthropic sector. Development of administrative skills that transform an idea into a viable company that serves a clientele through the use of administrative methods to fulfill its social mission.

3 credits

ENTR 3900 ENTERPRENEURIAL AND MANAGERIAL STRATEGIES
Evaluation of the management and business strategies of the company. Emphasis on the use of simulation programs and case studies. Use of computerized methods. Prerequisites: BADM 1900, 3900, ENTR 2200, MKTG 1210.

3 credits

ENTR 4400 DESIGN AND DEVELOPMENT OF A BUSINESS PLAN
Application of business and management principles to the development, analysis and interpretation of business plans of companies that are in the process of being formed or are operating. The student will dedicate a minimum of 30 additional hours during the academic term to the study of an established business or one in the development process. Prerequisites: ENTR 3900, FINA 2100.

3 credits

ENTR 4910 ENTREPRENURIAL AND MANAGERIAL PRACTICUM
Application of the knowledge, skills and attitudes in a work scenario under the supervision of a professor. Requires a minimum of 135 supervised hours during the academic term. Prerequisites: ACCT 1162, ENTR 4400.

3 credits

ENTR 4920 ENTREPRENURIAL AND MANAGERIAL SIMULATION
Entrepreneurial and managerial practical experience using computerized simulation programs for the decision-making process. The student is required to dedicate a minimum of 90 hours under the supervision of a professor during the academic term to develop a company or to complete an assigned task. Prerequisites: ACCT 1162, ENTR 4400.

3 credits

Courses in Environmental Sciences (EVSC)

EVSC 1110 INTRODUCTION TO ENVIRONMENTAL SCIENCES
Introduction to the study of environmental sciences with emphasis on its scientific base. Attention will be given to the social and economic aspects. Requires 30 hours of lecture and 45 hours of lab.

3 credits

EVSC 2210 ENVIRONMENTAL POLICIES, LAWS AND REGULATIONS
Study and analysis of the policies and most relevant legal resources for pollution control and the conservation of natural resources in Puerto Rico and the United States. Prerequisite: EVSC 1110.

3 credits

EVSC 2500 QUALITY OF AIR
Study of the characteristics of air, ways it is contaminated and the effects of this. Emphasis on sources that generate contamination, the laws that control it and the technologies used in its control. Prerequisite: EVSC 2210.

2 credits

EVSC 3001 MANAGEMENT AND CONSERVATION OF NATURAL RESOURCES
Introduction to the use, conservation and management of natural resources: soil, water, forests, wild life, sea, minerals and air. The principal conservation mechanisms and strategies as well as restoration will be studied. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: EVSC 1110, BIOL 1101, 1103.

4 credits

EVSC 3600 WASTE MANAGEMENT
Study of the generation, handling, disposition and treatment of solid, dangerous and toxic wastes. In addition, their sources, characteristics, storage, transport, reduction, reuse and recycling are studied. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: EVSC 2210, BIOL 3504, CHEM 2111.

3 credits

EVSC 3603 HEALTH AND OCCUPATIONAL SAFETY IN ENVIRONMENTAL PROTECTION
Introduction to the study of health and occupational safety in environmental protection. Includes the identification of dangers, description of risks, prevention of damage and regulations. Emphasis on the development and handling of programs in the industrial and commercial context. Prerequisite: EVSC 3600.

3 credits

EVSC 3713 USE OF LAND AND GEOGRAPHIC INFORMATION SYSTEMS
Description and analysis of the different uses of land and the available mechanisms to facilitate planning. Emphasis on the use of Geographic Information Systems to facilitate planning of land use. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: EVSC 3001.

3 credits

EVSC 4504 USE, CONSERVATION AND QUALITY OF WATER
Evaluation of water as a resource, its use, and its relation to the environment. Emphasis on protection mechanisms to maintain its quality such as treatment, quality standards and analysis. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: EVSC 3602, CHEM 2212.

3 credits

EVSC 4910 INTERNSHIP IN ENVIRONMENTAL SCIENCES
Practical work experience in government, business, industry or other organization with a program of environmental control or protection. This practice will be performed under the supervision of enterprise personnel in coordination with the assigned professor. This experience may be directed to the areas of pollution-control and/or conservation of natural resources. 120 hours of work are required. Prerequisite: The approval of 21 credits from the major and related requirements.

3 credits

EVSC 4955 INTEGRATION SEMINAR IN ENVIRONMENTAL SCIENCES
Development and oral and written presentation of a creative work using as the primary base scientific articles in which the knowledge and experience acquired in environmental sciences are integrated. Prerequisite: The approval of 24 credits in environmental science courses.

1 credit

Courses in Environmental Technology (EVTH)

EVTH 3010 ENVIRONMENTAL PUBLIC POLICY
State and federal laws on environmental public policy and safety in different works scenarios. Emphasis on the general concepts and principles regarding policy, planning, and administration of natural resources; in addition, procedure requirements and techniques for preparing and utilizing different types of environment documents and their effect on decision-making. Prerequisite: CHEM 2221.

3 credits

EVTH 4020 ENVIRONMENTAL EVALUATION
Application of the practices, techniques and methods used in activities for planning, protection and environmental evaluation. Emphasis on the identification and solution of problems from a interdisciplinary perspective. Prerequisites: EVTH 3010, CHEM 3000.

3 credits

EVTH 397_ SPECIAL TOPICS
Analysis and discussion of specific topics related to the environment.

3 credits

EVTH 4910 INTERNSHIP
Conduct of a research project in a governmental agency, private company or in another organization that carries out activities such as of research, conservation or environmental management. A minimum of 120 hours under the supervision of a faculty member is required. Prerequisites: Have passed 40 credits of the major and the authorization of the director of the department.

3 credits

EVTH 4960 INTEGRATION SEMINAR
Integration of acquired knowledge by oral and written presentations of themes dealing with the environment. Analysis, discussion and possible solutions to environmental problems. Emphasis on matters related to regulations, use and management of environmental resources and ethical implications. Prerequisite: permission of the Department Director.

1 credit

Courses in Finance (FINA and MAMS)

FINA 2100 MANAGERIAL FINANCE
Study of the basic and contemporary principles of financial administration and its use in decision making. Emphasis on the use of mathematical models to determine the present and future value of investments. Use of techniques to evaluate the financing of the company's assets, risk and project yield. Analysis of the structure and the cost of capital. Prerequisite: ACCT 1161.

3 credits

FINA 3120 ADVANCED MANAGERIAL FINANCE
Analysis and problem solving in financial administration. Emphasis on long term investments and financing, as well as the dividends policy. Discussion of the merger, bankruptcy and reorganization processes. Analysis of cases and related integrative problems. Prerequisite: FINA 2100.

3 credits

FINA 3130 CREDITS AND COLLECTIONS
Analysis of the nature and function of credit and the importance of the effective administration of personal and commercial credit. Discussion of the basic principles, legal aspects, and the evaluation and decision to grant credit. Includes the credit and collection department's responsibility for the assessment of risk and control of collections. Prerequisite: FINA 2100.

3 credits

FINA 3150 PERSONAL FINANCE
Discussion of personal finance planning of available resources on a short and long term basis. Analysis of financial and investment decisions with regard to present and future available income and the personal or family budget. Emphasis on the decision-making process for the selection of resources for financial protection (insurance); retirement planning, personal investment and the tax payments. Prerequisite: FINA 2100.

3 credits

FINA 3200 PRINCIPLES OF INVESTMENT
Identification of the characteristics and mechanisms of the investment process. Discussion of the risk and yield theory. Analysis of the main stock-exchange investments: bonds, stocks, options, mutual funds, futures, and others. Emphasis on the models of evaluation used in the investment portfolio. Prerequisites: FINA 3120, MAEC 2222.

3 credits

FINA 3300 THE STOCK MARKET
Discussion of the operation and characteristics of the main primary and secondary financial markets. Discussion of the role of brokers and financial institutions as well as control mechanisms and regulations. Analysis of the main indices and averages of the markets, as well as the interpretation of published financial information. Emphasis on the theory of efficient markets, other contemporary theories and their application to investment strategies. Prerequisite: FINA 3200.

3 credits

FINA 3400 INTRODUCTION TO RISK AND INSURANCE
Evaluation and selection of the insurances in different companies. Emphasis on the methodology to carry out the analysis of risk, and the theoretical and practical principles in the insurance industry. Application of the techniques of handling subscriptions and insurance appraisals. Discussion of civil responsibility, bodily injuries and other people's property. Analysis and interpretation of financial statements, laws and ethics in the insurance industry. Prerequisite: FINA 2100.

3 credits

FINA 3500 INTRODUCTION TO REAL ESTATE
Analysis of the principles that govern the administration, possession and use of real estate, within the legal, social and economic context. Discussion of the evaluation, appraisal and financing aspects. Prerequisite: FINA 2100.

3 credits

FINA 4100 INTERNATIONAL FINANCE
Analysis and practices of enterprise financial administration within the context of globalization. Includes the analysis of international financial markets. Evaluation of resources and uses of funds abroad and the criteria in the selection of diverse investment opportunities. Emphasis on interchange mechanisms and financial instruments that cover risk in international transactions. Prerequisite: FINA 3300.

3 credits

FINA 4910 INTERNSHIP
Practical experiences in the finance field supervised jointly by a university professor from the area of finances and by a professional designated by the management of the practice center. Requires a minimum of 90 hours during the academic term. Prerequisites: Authorization by the Director of the Department and have passed 21 credits from core courses and 21 credits from the major courses.

3 credits

FINA 4970 SEMINAR IN FINANCE
Analysis of topics in the world of finance, with emphasis on modern trends. Integration of new developments in the finance field. Prerequisite: FINA 4100.

3 credits

The following courses are part of the academic offerings in finance. These courses are only for Associate Degree Candidates.

MAMS 2440 CREDIT AND COLLECTIONS
Credit reporting and collection services. Existing organizations and opportunities. Credit reporting and collection service activities. Capital and personal requirements. Laws pertaining to credit bureaus. Office and business management. Prerequisite: ACCT 1161.

3 credits

MAMS 2620 PURCHASING PRINCIPLES AND TECHNIQUES
Principles and techniques of purchasing. Aspects of purchasing with emphasis on long term policies and profit-making opportunities. Prerequisite: BADM 1550.

3 credits

Courses in Food Technology (FTEC)

FTEC 2000 INTRODUCTION TO SCIENCE AND FOOD TECHNOLOGY
Introduction to the study of the basic concepts and general technical aspects of the science and technology of foods and their relation to the food industry.

3 credits

FTEC 3100 FOOD TECHNOLOGY AND PROCESSING
Procedures used for food processing and preservation in business conditions. Includes freezing, dehydration, fermentation refrigeration, canning, packaging, cooking, additives and radiation. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3309.

3 credits

FTEC 3200 FRESH MEAT TECHNOLOGY
Principles and practices in handling, processing and preservation of fish, seafood, beef, fowl and pork. Requires 30 hours of lecture and 45 hours of lab.

3 credits

FTEC 3300 MILK PRODUCTS TECHNOLOGY
Principles and practices involved in processing milk and products derived from it. This includes butter, cheese, yogurt and ice cream. Requires 30 hours of lecture and 45 hours of lab.

3 credits

FTEC 4010 NUTRITIONAL ASPECTS AND THEIR APPLICATION
Study of the concepts related to nutrition and their practical application in the science and technology of food. The stages of individual growth and development and general health are studied. Prerequisite: BMSC 4015.

3 credits

FTEC 4020 QUALITY CONTROL IN THE FOOD INDUSTRY
Study of the techniques used to evaluate the attributes of food quality in processing plants, from the purchase and storage of the raw material to its preparation and the distribution. Prerequisite: FTEC 3100.

3 credits

FTEC 4030 PRODUCT RESEARCH AND DEVELOPMENT
Product design and development using the principles of chemistry and food processing, nutrition, sensorial and statistical analysis. Prerequisites: FTEC 3100, CHEM 3360, BIOL 2153.

3 credits

FTEC 4910 INTERNSHIP
Practical experience in food technology in cooperation with a private or government agency. Students will undergo a practical experience under a shared supervision of the academic department, the coordinator of the cooperative program and an officer of the participating company. One hundred twenty (120) of practical work. Prerequisite: 29 specific credits of the major.

3 credits

Courses in Forensic Science (FORS)

FORS 2000 INTRODUCTION TO FORENSIC SCIENCE
Introduction to the study of the general concepts and technical aspects of forensic science and its relation to the justice system.

3 credits

FORS 3400 FORENSIC TOXICOLOGY
Application of the principles of toxicology to the area of forensic science. Emphasis on legal medical aspects, mechanism of action and on analysis techniques for toxic substances. Prerequisites: BIOL 1116, CHEM 2222.

3 credits

FORS 3970 SPECIAL TOPICS
Analysis and discussion of different specific topics on forensic science with emphasis on the discussion of cases. Prerequisite: Authorization of the Director of the Department.

3 credits

FORS 4421 FORENSIC INVESTIGATION I
Scientific study of the crime scene with the purpose of reconstructing the scene and gathering information and evidence to be used in establishing how the acts occurred and identifying those responsible for the crime. Prerequisites: FORS 2000, CJUS 1000.

3 credits

FORS 4422 FORENSIC INVESTIGATION II
Introduction to the theoretical and practical study of the methods used in the gathering, management, preservation and analysis of physical evidence at the scene of the crime. Emphasis on analysis proceedings employed in the field and in the laboratory. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: FORS 4421, CHEM 4220.

4 credits

FORS 4910 FORENSIC PRACTICE
One hundred eighty (180) hours of practical work in a criminal investigation scenario or the development of a research project under the supervision of a practice center or the Program faculty. Prerequisite: have passed thirty (30) credits in major courses, including CHEM 2222 and CHEM 3320, and the approval of the Director of Department.

3 credits

FORS 4960 INTEGRATING SEMINAR
Integration of knowledge obtained in the courses of the major by means of an oral and written presentation of a creative work in which a contemporary problem of forensic investigation is analyzed. Prerequisite: Have passed thirty (30) credits in courses of the major.

1 credit

Courses in French (FREN)

FREN 1001, 1002 ELEMENTARY FRENCH
Essentials of French grammar with emphasis on the spoken language.

4 credits per course

FREN 2021, 2022 INTERMEDIATE FRENCH
Review of grammar and study of composition. Continued emphasis on the spoken language. Prerequisite: FREN 1002 or two years of high school French.

3 credits per course

Courses in Geography (GEOG)

The courses in geography are designed to give basic preparation and additional training to students so they can pursue a career in the field. Some courses aim to provide geographically related information to people in other career areas such as biology, botany, ecology, history, economics, education and political science. Included in the curriculum are basic courses in oceanography. No major in geography is offered.

GEOG 1014 ELEMENTS OF OCEANOGRAPHY
General study of oceans including habitats, sea farming and the importance of ecology and natural resources to man. Requires 45 hours of lecture and related field projects. Non-credit course, except by arrangement with the Dean of Studies.

GEOG 1114 INTRODUCTION TO THE OCEAN SCIENCES
Fundamentals of marine biology, physical oceanography and oceanographic methods presented in an interdisciplinary context. Requires 30 hours of lecture and 60 hours of field trips or lab.

4 credits

GEOG 1144 INTRODUCTION TO CULTURAL GEOGRAPHY
Man-created environment: population; cultural landscape; social, economic and political phenomena in relation to natural environment.

3 credits

GEOG 2000 EARTH SCIENCES
Basic concepts of land sciences including the natural physical environment, the interior and exterior surface of the earth, rocks and minerals, atmosphere, bodies of water, climate and other phenomena related to changes that affect our planet. Basic principles of space flights, history and geological time. Skills in cooperative work and solution of problems. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: GEMA 1200.

3 credits

GEOG 2034 INTRODUCTION TO PHYSICAL GEOGRAPHY
Study of the natural environment: earth-sun relations, time, space, location, maps; structure of earth, land forms, water bodies; weather and climate; soils, plants and animals. Requires 45 hours of lecture and 30 hours of lab.

4 credits

GEOG 3014 CARTOGRAPHY AND AERIAL AND SATELLITE PHOTOGRAPHY
Map projections, charts and diagrams; map and air photo analysis and interpretation; map making.

3 credits

GEOG 3024 CLIMATOLOGY
Systematic study of the elements of weather, regional analysis of the world's climates.

3 credits

GEOG 3274 ECONOMIC GEOGRAPHY
Emphasis on the economic location theory and occupations approach to the production and distribution of world products. Population, resources, transportation and primary activities.

3 credits

GEOG 3284 GEOGRAPHY OF MANUFACTURING
Geographic location theory in relation to primary, secondary and tertiary production; transport networks and trade areas at varied scales, accessibility. Geographic analysis of major industrial countries.

3 credits

GEOG 3414 GEOGRAPHY OF ANGLO-AMERICA
Systematic and regional analysis of geographic conditions of North America north of the Rio Grande.

3 credits

GEOG 3424 GEOGRAPHY OF SOUTH AMERICA
Geographic bases for the economic and political development of the continent; its future potentialities.

3 credits

GEOG 3434 GEOGRAPHY OF MIDDLE AMERICA AND THE CARIBBEAN
Systematic study of the physical environment, population and resources of Mexico, Central America and the Caribbean; regional analysis of their human development.

3 credits

GEOG 4224 POLITICAL GEOGRAPHY
Geographic analysis of political developments in their spatial distribution; their relationship to environment, resources and technology. Geopolitical patterns of the world.

3 credits

GEOG 4494 GEOGRAPHY OF PUERTO RICO
Geographic bases in Puerto Rican development; land use in Puerto Rico. Requires field trips.

3 credits

GEOG 4514 GEOGRAPHY OF EUROPE
Regional study of the continent exclusive of the Commonwealth of Independent States.

3 credits

GEOG 4524 GEOGRAPHY OF THE COMMONWEALTH OF INDEPENDENT STATES
Geographic bases of the Commonwealth of Independent States and their influence upon the development of these countries.

3 credits

GEOG 4904 HISTORY OF GEOGRAPHIC THOUGHT
Evolution of human knowledge and concepts of the earth through the development of the science of geography. Biographical sketches of outstanding geographers.

3 credits

GEOG 4934 GEOGRAPHY OF ENERGY AND MASS
Geographic variations in the energy budget, forms, availability and uses of energy; relationships between exchanges and conversions of energy and other natural resources; conservation and management. Requires 45 hours of lecture and 30 hours of lab.

4 credits

GEOG 4964 THE ARCTIC AND CIRCUMPOLAR LANDS
Comprehensive treatment of the circumpolar countries and Arctic basin. An account of the Arctic and sub-Arctic environment with special emphasis on the unique northern elements. Reviews of recent research in geomorphology, climatology, glaciology, oceanography, wild life, fisheries, transportation, construction, anthropology and community development in the middle north and high Arctic.

3 credits

Courses in German (GERM)

GERM 1001, 1002 ELEMENTARY GERMAN
Essentials of German grammar with emphasis on the spoken language.

4 credits per course

GERM 2021, 2022 INTERMEDIATE GERMAN
Review of grammar and study of composition. Practice in reading at the intermediate level. Prerequisite: GERM 1002 or two years of high school German.

3 credits per course

Courses in Gerontology (GERO)

GERO 2000 INTRODUCTION TO GERONTOLOGY
Discussion of the fundamental concepts and principles of gerontology. Application during intervention with the elderly adult. The biological, social and psychological aspects of normal aging are emphasized.

3 credits

GERO 2010 NEUROPSYCHOLOGY OF THE ELDERLY ADULT
Systematic study of the nervous system of the elderly adult. Analysis of the relation between human conduct and neuropsychology. Prerequisite: GERO 2000.

3 credits

GERO 3310 ETHICAL AND LEGAL ASPECTS IN GERONTOLOGY
Study of the basic ethical and legal aspects in the intervention and the care of the elderly adult, as well as the attitudes and behavior towards this group. Development of awareness of ethical responsibility, protection and respect while offering social and health services. Analysis, discussion and application of ethics in situations related to client care.

3 credits

GERO 3311 LOSS AND DEATH
Exploration of theories, approaches and practices related to the loss, pain, death and mourning in the elderly adult. Study of the stages of death and the intervention strategies considering the cultural aspect. Prerequisite: GERO 2000.

2 credits

GERO 3312 TRENDS AND CONTROVERSIES IN ELDERLY ADULT CARE
Analysis of the trends and controversial matters related to the elderly adult. Effect on the health care and social services provided to this population. Principles of research in gerontology are included. Prerequisite: GERO 2000.

2 credits

GERO 4313 ALTERATIONS OF THE HEALTH CYCLE - DISEASE IN THE ELDERLY ADULT
Study of the physiopathology in acute and chronic physical and psychological alterations common in elderly adults. Application of the nursing process in the prevention of disease, the promotion, maintenance and restoration of health of the elderly client. Use of research findings. Prerequisites: GERO 2000, 2010, 3310, 3311, 3312. Corequisite: GERO 4915. Course is only for Nursing students interested in completing the requirements of the Minor in Gerontology.

3 credits

GERO 4915 CLINICAL PRACTICUM IN GERONTOLOGY
Application of the basic concepts of gerontology, the ethical, legal, and research aspects and trends in the care of the elderly adult with acute and chronic alterations of health in structured and not structured scenarios. Assessment of the nursing process as a means of providing nursing care. The biopsycosocial care within a multidisciplinary health team is considered. Sixty hours of practice are required. Corequisite: GERO 4313. Course is only for Nursing students interested in completing the requirements of the Minor in Gerontology.

2 credits

GERO 4970 SEMINAR IN SOCIAL GERONTOLOGY
Analysis of the conditions of marginalization and discrimination to which the elderly are subjected. Study of the social policies and how they comply with guaranteeing social justice to this population. Course is only for Social Work students interested in completing the requirements of the Minor in Gerontology.

3 credits

GERO 4916 PRACTICE IN SOCIAL GERONTOLOGY
Application of the basic concepts of gerontology, the ethical, legal, and research aspects and trends in the care and social services of the elderly adult in care scenarios. The biopsycosocial care within a multidisciplinary health team is considered. Sixty hours of practice are required. Corequisite: GERO 497_. Course is only for Social Work students interested in completing the requirements of the Minor in Gerontology.

2 credits

Courses in Health, Physical Education and Recreation (HPER)

HPER 1870, 1880 THEMES IN HEALTH, PHYSICAL EDUCATION AND RECREATION
Individual, dual, team sports and dance; physical conditioning, weight control; simple games. Two hours of theory-practice per week.

2 credits per course

HPER 2030 PHILOSOPHY AND BASIC PRINCIPLES OF HEALTH
Critical analysis of the philosophical development of basic health principles. Includes the study of degenerative diseases, physical and mental limitations, transmissible diseases, defenses of the body and immunization programs.

3 credits

HPER 2140 EXPERIENCES IN MOVEMENT I
Theory and practice of the fundamentals and related concepts of human movement, basic motor skills and basic gymnastics. Study of physical activity and games as means of discovering the attributes of the individual. New, traditional and creative games.

2 credits

HPER 2150 HEALTH AND PHYSICAL EDUCATION PROGRAM IN THE ELEMENTARY SCHOOL
Philosophy of the health and physical education program at the elementary level. The health phase includes instruction, services and healthful school living; the physical education phase covers teaching simple games and rhythmic, self-exploration and self-discovery activities.

3 credits

HPER 2210 FUNDAMENTALS OF THE PHYSICAL EDUCATION DISCIPLINE AND PROFESSION, FUNCTION OF THE TEACHER IN THE DISCIPLINE AND IN SOCIETY
The philosophical foundations, social and historical principles of physical education and its evolution through the history of the world and in Puerto Rico and its contribution to society. Functions of professionals, their responsibilities, functions and contributions to social, political, cultural and economic development.

3 credits

HPER 2220 EXPERIENCES IN MOVEMENT II
The rationale, the theory and practice of physical and recreational activities in nature, aquatic activity including swimming and aerobic activities.

2 credits

HPER 2230 SCHOOL HEALTH EDUCATION
Methods and materials for teaching health in the elementary schools; role and responsibilities of the teacher in the school health program.

3 credits

HPER 2320 FIRST AID AND PERSONAL SAFETY FOR CHILDREN, YOUTH AND ADULTS
Principles and techniques of first aid for offering primary assistance in the home, at school, at work, on the road, and in recreation and sports. The application of preventive taping, massages, therapeutic methods and strategies of rehabilitation for rapid recuperation. Includes practical experience.

2 credits

HPER 2540 SOCIAL RECREATION
Theoretical and practical aspects of social recreation; planning, organizing and directing activities and programs in social recreation; emphasis on leadership techniques.

3 credits

HPER 3010 SPORTS PSYCHOLOGY
Research and theories related to the mental, emotional and psychological aspects of participants in athletic activities and in physical education.

3 credits

HPER 3040 LEGAL FOUNDATIONS IN SPORTS
Analysis of the laws of Puerto Rico applicable to the sports industry. Legal implications in the practice of sports training and in the administration of a sports company.

3 credits

HPER 3050 INTRODUCTION TO THE PREVENTION AND MANAGEMENT OF INJURIES
Components of a program for prevention of athletic injuries. Includes protective equipment, bandaging and safety in the sports environment.

3 credits

HPER 3051 THERAPEUTIC MASSAGES
Discussion of the basic foundations for the application of different therapeutic massage techniques. Practical experience with emphasis on injuries in athletes is provided. Prerequisite: HPER 3050.

3 credits

HPER 3111 ELEMENTARY GYMNASTICS
Tumbling and basic exercises. Includes an introduction to gymnastic apparatus.

2 credits

HPER 3112 ADVANCED GYMNASTICS
Tumbling and exercises at the advanced level. Use of gymnastic apparatus and practice of gymnastic routines. Prerequisite: HPER 3111.

2 credits

HPER 3160 EDUCATIONAL AND RECREATIONAL GAMES IN THE CURRICULUM FOR THE ELEMENTARY LEVEL
Analysis of the importance of games as tools for the cognitive, emotional, social and physical development of the child. Design and development of educational activities through games with the utilization of apparatus and educational implements for integrating curriculum. Experience in recreational activities, simple, creative and

innovative games without the use of implements, cooperative games and lead-up activities for the students from K-6. Requires practical experience in the school or in educational centers.

3 credits

HPER 3220 THEORY AND DESIGN OF PHYSICAL EDUCATION PROGRAMS FOR THE ELEMENTARY LEVEL K-6

Review of the basis of the discipline, contemporary focuses and trends in curriculum models most relevant for grades K-6. Skills for curriculum development, design and implementation and the evaluation of programs. Laws and related regulations and national and state norms. Writing of curriculum documents applicable to teaching.

3 credits

HPER 3230 THEORY AND DESIGN OF PHYSICAL EDUCATION PROGRAMS LEVEL 7-12

Review of the basis of the discipline, contemporary focuses and trends in curriculum models most relevant for grades 7-12. Skills for curriculum development, design and implementation and the evaluation of programs. Laws and related regulations and national and state norms. Writing of curriculum documents applicable to teaching.

3 credits

HPER 3270 ANATOMY AND KINESIOLOGY

Study of the biomechanics of movement applied to different sport activities, analysis of anatomical and muscular-skeletal factors that affect the performance of human movement applied to typical and atypical populations. Laboratory experience provided.

3 credits

HPER 3310 EXPERIENCES IN MOVEMENT III

Experience leading to the development of corporal expression and knowledge, the values and mastery of skills related to dancing and rhythmic activities.

2 credits

HPER 3330 EXPERIENCES IN MOVEMENT IV

The development of knowledge, appreciation for and skills in the most established sports of our society. Sport skills, performance and evaluation (volleyball, basketball, softball and soccer).

3 credits

HPER 3340 SKILLS IN TEAM SPORTS II

Analysis and development of basic skills for teaching soccer and softball.

3 credits

HPER 3350 MOTOR LEARNING AND ANALYSIS OF MOVEMENT

Theory of motor learning. Descriptive and qualitative analysis of human movement, and the mechanisms which influence the neuromuscular system. Requires practical experiences. K-12.

3 credits

HPER 3360 EXPERIENCES IN MOVEMENT V

Development off knowledge and appreciation for the teaching of the best known individual sports; ping-pong, tennis and track and field.

3 credits

HPER 3370 SKILLS IN INDIVIDUAL SPORTS II

Analysis and development of basic skills for teaching archery, badminton and gymnastics.

3 credits

HPER 3380 DIAGNOSIS AND PRESCRIPTION OF EXERCISES IN INDIVIDUAL AND TEAM SPORTS

Discussion of the basic foundations of exercise tests to make sport diagnoses. Emphasis on rehabilitation and the principles for interpreting these tests. Evaluation of physiological components for the prescription of the exercise in different types of sports. Practical experience is provided.

3 credits

HPER 3430 PERSONAL AND COMMUNITY HEALTH AND SAFETY
The integration of the concepts of a healthy lifestyle, personal safety, stress management, nutrition and prevention in the use of alcohol and drugs. Analysis of the importance of physical activities including sleep and rest.

3 credits

HPER 3450 RECREATIONAL EXPERIENCES
Methods, materials and techniques for teaching recreational activities. Includes outdoor experiences.

2 credits

HPER 3470 MOTOR THERAPY FOR CHILDREN WITH DISABILITIES
Analysis of the principal motor problems affecting the performance of children with disabilities. Design of adequate therapeutic activities. Special attention is given to experiences for the development of mobility in children. Field experiences provided.

3 credits

HPER 3475 THEORY AND DESIGN OF PROGRAMS FOR SPECIAL POPULATIONS
Review of the basis of the discipline, contemporary focuses and trends in curriculum models most relevant for special populations. Skills for curriculum development, design and implementation and the evaluation of programs. Laws and related regulations and national and state norms. Writing of curriculum documents applicable to particular scenarios.

3 credits

HPER 3480 NUTRITION FOR SPORTS TRAINING
Nutrition and its interrelationship with health and performance in sports. Analysis of energy used and required during training and the development of a nutritional program during the training period.

3 credits

HPER 3495 PRINCIPLES OF THERAPEUTIC RECREATION
Study and application of principles for developing therapeutic activities. Analysis of the most used therapeutic models for special populations. Organization of therapeutic recreational activities. Field experiences provided.

3 credits

HPER 3800 TRENDS AND ISSUES IN ATHLETIC TRAINING
Analysis of the different problems encountered in athletic training. Readings, demonstrations and discussions related to the work of athletic coaches and the legal implications of fulfilling their responsibilities.

3 credits

HPER 3900 HUMAN SEXUALITY
Basic principles of human sexuality, with attention to the biological, psychosocial and cultural aspects, including family planning. Study of the activities, beliefs and sentiments with respect to human sexuality directed to foment the prevention of sexually transmissible diseases and the individual's responsibility in sexual conduct.

3 credits

HPER 4020 ADMINISTRATION OF PHYSICAL EDUCATION, WELLNESS, HEALTH AND SPORT PROGRAMS
The principal administrative theories and their application to physical education. Analysis of administrative processes involved in the organization of sports activities including interscholastic, intramural and invitational as well as tournaments and carnivals. Evaluation of facilities and equipment, the legal implications in case of accidents and poor security. Study of budgets. Includes laboratory experiences in practice.

3 credits

HPER 4110 EVALUATION, ASSESSMENT AND RESEARCH IN THE TEACHING AND LEARNING OF PHYSICAL EDUCATION K-6
Knowledge, interpretation and application of evaluation concepts, measurement, assessment and research and their relationship with the evaluation process in physical education at the elementary level. Analysis, design and

application of techniques and evaluation instruments, theoretical and practical tests. Includes the study of technology in the area. Provides practical experience.

3 credits

HPER 4120 EVALUATION, ASSESSMENT AND RESEARCH IN THE TEACHING AND LEARNING OF PHYSICAL EDUCATION 7-12

Knowledge and application of evaluation concepts, measurement, assessment and research and their relationship with the evaluation process in physical education at the secondary level. Analysis, design and application of techniques and evaluation instruments, theoretical and practical tests. Includes the study of technology in the area. Provides practical experience.

3 credits

HPER 4130 EVALUATION, ASSESSMENT AND RESEARCH IN THE TEACHING AND LEARNING OF ADAPTED PHYSICAL EDUCATION

Knowledge and application of evaluation concepts, measurement, assessment and research and their relationship with the evaluation process in physical education for children with disabilities. Analysis, design and application of techniques and evaluation instruments, theoretical and practical tests. Includes the study of technology in the area. Provides practical experience.

3 credits

HPER 4140 ASSESSMENT, EVALUATION AND RESEARCH OF TEACHING AND LEARNING IN SCHOOL HEALTH EDUCATION

Study of the concepts of evaluation, measurement, assessment and investigation and their relation with the educational process in health education. Analysis, design and application of evaluation techniques and instruments, theoretical tests and practices. Includes the use of the technology related to the area. Provides practical experience.

3 credits

HPER 4170 PHYSIOLOGY OF HUMAN MOVEMENT

The physiological changes (responses and adaptations) that occur in the human organism as a result of physical activity. Physiology of muscular contraction, cardiovascular system and the respiratory system and their function in sport activities. Application to different populations. Provides laboratory experience.

3 credits

HPER 4301 SPORT TRAINING METHODOLOGY I

Analysis of the fundamentals required in the periodicity systems of training of general and specific type, using physiological, biomechanical, psychological, tactical and social dimensions, so that an optimal sport yield is developed. Emphasis in the fundamental principles for all type of athletic training, the components or variables of sport training, the structure of the periods/phases of annual training and the training systems. Includes administrative and pedagogical aspects, public relations, the selection and motivation of the athlete, and the functions, qualifications and types of trainers (coaches). Practical experience is provided.

3 credits

HPER 4302 SPORTS TRAINING METHODOLOGY II

Analysis of the appropriate sport training for several sports. Emphasis on topics on the time periods for the development of muscular strength, cardio-respiratory tolerance, power and anaerobic capacity, speed and flexibility. Prerequisite: HPER 4301.

3 credits

HPER 4308 DESIGN OF EXERCISE PROGRAMS

Application of the principles for planning and design of programs of preventive physical training for diverse populations. Emphasis on the basic principles and the methodologies involved in the cardiopulmonary tests of maximum and sub-maximum effort. Prerequisite: HPER 4170.

3 credits

HPER 4320 COACHING AND OFFICIATING SOCCER
The skills, basic drills, conditioning activities, coaching techniques, principles of team selection and theoretical knowledge of soccer.

2 credits

HPER 4330 COACHING AND OFFICIATING BASKETBALL
The skills, basic drills, conditioning activities, coaching techniques, principles of team selection and theoretical knowledge of basketball.

2 credits

HPER 4340 COACHING AND OFFICIATING BASEBALL
The skills, basic drills, conditioning activities, coaching techniques, principles of team selection and theoretical knowledge of baseball.

2 credits

HPER 4350 COACHING AND OFFICIATING TRACK AND FIELD
The skills, basic drills, conditioning activities, coaching techniques, principles of team selection and theoretical knowledge of track and field.

2 credits

HPER 4360 COACHING AND OFFICIATING VOLLEYBALL
The skills, basic drills, conditioning activities, coaching techniques, principles of team selection and theoretical knowledge of volleyball.

2 credits

HPER 4370 THE TEACHING OF PHYSICAL EDUCATION FOR SPECIAL POPULATIONS
Study and application of methodologies for teaching special populations, adaptation of activities, equipment and materials, study of related laws, evaluation and elaboration of the required documents for the physical education class. Provides practical experience.

3 credits

HPER 4407 MOVEMENT EXPERIENCES
Movement patterns commonly used by children in self-discovery; relation of the body to space, applying the elements of time, weight, balance and force.

3 credits

HPER 4441 PRACTICUM IN ATHLETIC TRAINING I
Supervised clinical experience by professional personnel in the application of the principles of athletic training. Includes an emergency plan for injuries, transportation of the injured, risk reduction in practice and games, and record keeping.

3 credits

HPER 4442 PRACTICUM IN ATHLETIC TRAINING II
Second clinical experience including the use of devices, protective equipment, conditioning machines, taping and special problems of the athlete with recurring injuries. Prerequisite: HPER 4441.

3 credits

HPER 4444 CLINICAL EXPERIENCES IN TRAINING
Practical experience in different sport scenarios and service centers. Participation in the planning and design of programs of training directed towards the prevention of chronic diseases and/or the improvement of performance in the sport. Implementation of ergometric tests, muscular strength and flexibility, as well as the assessment of corporal composition. One hundred five hours of practice are required. Prerequisite: HPER 4308.

3 credits

Courses in Health Sciences (HESC)

HESC 3005 HUMAN DEVELOPMENT
Analysis of the developmental processes of the human life cycle from the biological, psychological and social perspective, with emphasis on the adult. Includes the relation of the physical, emotional and social aspects of development and their importance in achieving a full and productive life.

3 credits

HESC 3010 ESSENTIAL CONCEPTS IN HEALTH SCIENCES
Analysis of the fundamental principles of the health sciences. Discussion of the ethical, and legal considerations, regulatory agencies and of the trends and controversies in offering health services.

3 credits

HESC 3020 HEALTH AND ILLNESS THROUGHOUT THE LIFE CYCLE
Study of diseases throughout the life cycle, integration of technology in the diagnosis and therapeutic modalities and their economic impact on health services. Analysis of congenital anomalies, disabling conditions, teenage pregnancy, suicide, accidents on the job, conditions and phases unique to women, unique conditions of men, health/well-being of elderly in Puerto Rico. Review of the psychological aspect of disease and disability. Includes the process of death and dying, the crisis process, ethical controversies on euthanasia and prolongation of life through mechanical devices.

4 credits

HESC 4010 RESEARCH METHODS IN HEALTH SCIENCES
Analysis of the methodological basis of scientific research. Includes the theoretical base and development of skills to interpret and critique research reports. Emphasis on the identification of possible problems and processes for research. Prerequisite: HESC 3030.

3 credits

HESC 4015 QUALITY GUARANTEE AND IMPROVEMENT
Theoretical and philosophical frames for improving the quality of health services. Discussions of models such as: Total Quality Management, Quality Assessment, and Continuous Quality Improvement. Analysis of the latest trends in the guarantee and improvement of quality.

3 credits

HESC 4030 COLLECTIVE HEALTH PROMOTION
Study of three main areas: strategies for promotion of health in the community, protection of environmental health, health services and resources. Includes the identification of group or populational diseases, correlates risk factors with the disease, factors protecting against disease and health indicators. Analysis of the role of the health educator and care provider in the communities. Integration of principles for disease prevention

3 credits

HESC 4050 PLANNING AND MARKETING HEALTH SERVICES
Discussion of the marketing system and the strategy components of promotion from the perspective of providing health services. Design, implementation, and control of marketing programs of services taking into consideration the social responsibility of the health agency. Includes ethical principles that regulate the marketing field.

3 credits

HESC 4055 METHODS AND TECHNIQUES IN TEACHING HEALTH SCIENCE
Theories of instruction applied to the planning and development of teaching health sciences. Analysis, use of methods and techniques of teaching, selection and preparation of materials for teaching integrating technological resources, innovation, and creativity. Prerequisite: EDUC 2032.

3 credits

HESC 4060 DESIGN AND DEVELOPMENT OF AN EDUCATIONAL HEALTH PLAN
Diagnosis of needs, formulation of goals, selection of content, planning and evaluation in the instruction of health sciences. Techniques for the evaluation of learning. Emphasis in the education of clients in the clinical scenario, based on the assessment of the state of physical and emotional health, and the phase of growth and development. Prerequisites: HESC 4030, EDUC 2032.

3 credits

HESC 4065 AUDITING PRINCIPLES APPLIED TO HEALTH SERVICES
Principles and concepts of auditing applied to the health systems in Puerto Rico. Emphasis on internal control systems.

3 credits

HESC 4913 INTERNSHIP
Supervised practical experience in an educational scenario related to the health field. Includes the application of knowledge contained in the courses with an educational component. Requires a total of 90 hours of practice and 30 hours of seminar in a semester. Prerequisites: Have passed the major requirements and those of the subspecialization.

4 credits

HESC 4915 INTERNSHIP
Practical on the job experience directed in the execution of daily administrative operations in a health services facility. Includes the application of administrative theory. Requires 180 hours. Prerequisite: Have passed 19 to 23 credits in courses of the major.

3 credits

Courses in History (HIST)

HIST 1020 THE ANCIENT WORLD
Economic, social, political and cultural changes experienced by humanity from its appearance on Earth up to the fifth century of the Christian Era.

3 credits

HIST 1030 THE MEDIEVAL WORLD
Economic, social, political and cultural changes experienced by humanity from the fifth to the fifteenth century of the Christian era.

3 credits

HIST 1040 THE MODERN WORLD
Economic, social, political and cultural changes that the western world has experienced from the 15th century Christian era to the 17th century.

3 credits

HIST 1050 THE CONTEMPORARY WORLD
Economic, social, political and cultural changes the western world has experienced from the 18th century to the present.

3 credits

HIST 2010 LATIN AMERICAN INDIGENOUS CULTURES
Study the indigenous cultures of Latin America, including the Antilles, from the pre-Columbian era to the present. Particular attention is paid to the study of the world view of these cultures and how they first confronted the Europeans and then the dominant republican groups.

3 credits

HIST 2020 SPAIN AND PORTUGAL I
Economic, social, political and cultural transformations experienced by the inhabitants of the Iberian Peninsula from the arrival of the first settlers to the fifteenth century of the Christian era.

3 credits

HIST 2025 SPAIN AND PORTUGAL II
Economic, social, political and cultural transformations experienced by the inhabitants of the Iberian Peninsula from the fifteenth century to the present.

3 credits

HIST 2030 COLONIAL LATIN AMERICA
Interpretation of the economic, social, religious, political and cultural transformations experienced by Latin America from the time of its discovery and conquest to its struggle for independence.

3 credits

HIST 2035 LATIN AMERICA SINCE ITS INDEPENDENCE
Economic, social, political and cultural transformations experienced by Latin America, from the wars for independence to the present.

3 credits

HIST 2040 THE CARIBBEAN SINCE THE 17TH CENTURY
The Caribbean region, touching on key aspects of development in the 17th century when this region entered the world economy as an important producer of sugar and other tropical products. Emphasis is placed on the Haitian Revolution and its importance in the political and economic development thereafter. Emphasis on the relationship between the Caribbean and Puerto Rican history.

3 credits

HIST 2045 THE HISPANIC CARIBBEAN FROM THE 15TH TO THE 18TH CENTURIES
Discussion of the development of the Spanish colonies in the Caribbean between the 15th and 18th centuries. Emphasis on socioeconomic, political, religious and cultural aspects.

3 credits

HIST 2050 PUERTO RICO I
Economic, social, political and cultural transformations experienced by Puerto Rico through an analysis of historical documents and histographical sources. Covers the history of Puerto Rico from the arrival of the first settlers to 1810.

3 credits

HIST 2055 PUERTO RICO II
Economic, social, political and cultural transformations experienced by Puerto Rico through an analysis of historical documents and histographical sources. Covers the history of Puerto Rico from 1810 to the present.

3 credits

HIST 2060 INTRODUCTION TO ORAL HISTORY
Introduction to the study of oral history as a work tool in social sciences in general, as well as in history in particular and its application in current society. Includes research experiences.

3 credits

HIST 2210 THE COMPUTER IN HISTORICAL RESEARCH
Use of the computer in historical research. Includes an introduction to computer technology, use of databases, with an emphasis on the Internet and commercially available programs related to historical research. Study of examples of applying computers to research, including the development of a research exercise by the students. (No previous knowledge of computers is required).

3 credits

HIST 2220 PUERTO RICO AND THE INSULAR CARIBBEAN IN THE 20TH CENTURY
Political, economic and social development of the insular Caribbean in the 20th century from a perspective of Puerto Rico as a Caribbean country. Course emphasis on the process of dissolution of the English, French and Dutch colonial empires, as well as North American presence in the Caribbean.

3 credits

HIST 3010 HISTORICAL PROCESS OF THE UNITED STATES OF AMERICA
Survey of political, social, economic and cultural events; institutions and movements of significance in the development of the United States.

3 credits

HIST 3020 EUROPE I
Economic, social, political and cultural transformations contributing to the formation of Europe from the fifteenth to eighteenth century.

3 credits

HIST 3025 EUROPE II
Economic, social, political and cultural transformations contributing to the formation of Europe from the nineteenth century to the present.

3 credits

HIST 3030 THE MUSLIM WORLD
Introduction to the study of the Muslim world, its ethnic origin and its territorial expansion after the founding of Islam in the 7th century AD, and its diffusion throughout North Africa, Spain and the Orient. Political, religious and cultural aspects and their impact on the world are esamined.

3 credits

HIST 3040 AFRICA
Analysis of the economic, social, political and cultural transformations contributing to the formation of contemporary Africa. Emphasis on the partition of Africa by European powers and the development of the current African states.

3 credits

HIST 3050 UNITED STATES I
Economic, social, political and cultural transformations contributing to the establishment of the United States as a nation, from its European colonization to the Civil War.

3 credits

HIST 3055 UNITED STATES II
Economic, social, political and cultural transformations experienced by the United States from the Reconstruction Period to the present.

3 credits

HIST 3060 ASIA
Analysis of the economic, social, political and cultural transformations contributing to the formation of the current Asian states. Emphasis on the European penetration into India, China and other regions of Asia, the rise of the Japanese Empire, the Chinese Revolution and the struggles for independence following World War II. Analysis of the economic impact of Asis on the globalized world.

3 credits

HIST 3070 RUSSIA UNTIL 19TH CENTURY
Economic, social, political and cultural transformations that the inhabitants of the Russian territories have experienced from pre-history until the decade of the 1860s.

3 credits

HIST 3075 RUSSIA DURING THE 19TH AND 20TH CENTURIES
Economic, social, political and cultural transformations the inhabitants of the Russian Empire and Soviet Union territories have experienced from the decade of 1860 until the present.

3 credits

HIST 3210 THE SECOND BRITISH EMPIRE
The British Empire from the end of 18th century to its dissolution. Economic, social and political aspects that allowed for territorial expansion since the 18th century are examined as well as the prevailing conditions in the 20th century that influenced independence movements.

3 credits

HIST 3220 MEXICO SINCE ITS INDEPENDENCE
History of the political evolution and the ideological struggles in Mexico since its independence to the present.

3 credits

HIST 3225 THE VICEROYALTY OF THE NEW SPAIN
Analysis of the meeting of two civilizations. Emphasis on the political, institutional, religious, socioeconomic and cultural developments of the viceroyalty of the New Spain from 1521 to 1810.

3 credits

HIST 3230 THE ERA OF REVOLUTIONS 1774 -1824
Analysis of the political, religious and socio-economic transformations as consequences of the revolutions in North America, France, Haiti and Spanish America. The focus will be on the ideas of the Enlightenment.

3 credits

HIST 4020 HISTORIOGRAPHY
Study of historical thought process found in the most outstanding texts dating from antiquity to the present. Modern conditions of history are stressed.

3 credits

HIST 4110 HISTORICAL PROBLEMS
Intensive study of a historical problem in one of the areas or periods presented in catalog courses or in a historical area that goes beyond geographical or chronological limits. The particular problem to be analyzed by the course and the prerequisites will be announced by the department each time the course is offered.

3 credits

HIST 4210 HISTORICAL RESEARCH
Application of research methods and techniques used by historians. Selection of a topic and the research and elaboration of this subject using an integrated vision of the use and management of primary and secondary sources. Search of external files by the use of libraries and virtual files. Oral and written presentation of a principle monographs that shows the application of one or various techniques of research. Prerequisite: HIST 4020.

3 credits

HIST 4220 BRAZIL
History of the political, social and economic development of Brazil under Portuguese rule and as an independent country. Its role in the international community is emphasized.

3 credits

HIST 4230 SPANISH AMERICAN INSTITUTIONS BEFORE INDEPENDENCE
Development of institutions established by Spain in their colonies: administrative, economic and legal policies and the Land Owners ("El Patronato"). The legacy and influence of these on present institutions is examined.

3 credits

HIST 4240 COUNTRIES OF THE SOUTHERN CONE
Comparison of the political, economic and social development of Argentina, Uruguay and Chile from independence to the present. Analysis of the differential factor which surfaced due to the impact of European immigration on the development of these countries, seen in the context of America and the impact of the European Community.

3 credits

HIST 4250 CANADA
The political, economic, social and cultural development since Canada's organization as a power in 1867. The evolution of its constitution, its relationships as an independent country and its position as one of the top seven economic powers of the world are analyzed.

3 credits

HIST 4260 RELATIONS OF CHURCH AND STATE IN COLONIAL AMERICA
Comparison and interpretation of the relations of the Church and the State in Colonial America from 1492 to 1825 together with its historical development.

3 credits

HIST 4299 STUDY-TRAVEL SEMINAR
Panoramic study from a political, economic, social and cultural point of view of the history of the countries to be visited. This course is required to participate in the trip.

3 credits

HIST 4300 STUDY-TRAVEL
Visit to the countries studied during the previous seminar to enhance, on site, the acquired knowledge of their political, economic, social and cultural development.

3 credits

Courses in Hotel Management (HMGT)

HMGT 1060 INTRODUCTION TO MARKETING IN THE HOTEL INDUSTRY
Principles and basic marketing concepts applied to the hotel industry. Organization, planning and marketing strategies for services pertaining to lodging facilities. The variables controlled by enterprises and those beyond their control. Consumer behavior and modern marketing tendencies, segmentation and location of markets and information systems.

3 credits

HMGT 1200 INTRODUCTION TO THE HOSPITALITY INDUSTRY
Description of the general characteristics of the hospitality industry and the basic concepts related to the types of hotels, restaurants and the services that these offer. Emphasis on the organizational structure and the typical operational procedures of these organizations. Prerequisites: TURI 1020, BADM 1900.

3 credits

HMGT 2100 ENGLISH ORAL COMMUNICATION SKILLS FOR HOSPITALITY AND TOURISM
Development of oral communication skills in English by means of the discussion of topics related to hospitality scenes and tourism. Requires 30 hours of closed laboratory and a minimum passing grade of B. Course will be taken after having passed the nine (9) required credits in any of the levels of English of the General Education Program (GEP).

3 credits

HMGT 2400 PHYSICAL FACILITIES MANAGEMENT
Identification of the general functions of the floor housekeeping and engineering departments of a hotel organization. Description of the general techniques for room maintenance and preservation of facilities. Discussion of topics related to security and preservation of the ecological environment. Includes the technologies related to property operations and control of costs. Prerequisite: HMGT 1200.

3 credits

HMGT 3010 RECEPTION DEPARTMENT
Systematic analysis of the procedures of the reception office of a hotel. Emphasis on the complete process, from reservation to checkout and invoicing. Application of managerial processes to achieve effectiveness, planning and evaluation of operations and human resources within the context of the general operation of hotels. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: HMGT 1200, 2100, ACCT 1162.

3 credits

HMGT 3200 HUMAN RESOURCES MANAGEMENT IN THE HOTEL INDUSTRY
Analysis of the effectiveness of the norms and practices related to personnel by means of lectures, discussions and cases studies. Emphasis on recruitment, selection, positioning and development of human resources. The study of practices related to hotel industry personnel is stressed. Prerequisites: BADM 1900.

3 credits

HMGT 3300 FOOD AND SERVICES MANAGEMENT
Importance of food management and control of material supplies and services. Development of a continuous plan for determining standards, operational budgets, analysis and control of costs, labor expenses, volume and profits, income and price calculations.

3 credits

HMGT 3301 FOOD AND BEVERAGE MANAGEMENT I
Description of the organization of a kitchen and its corresponding equipment. Use of commercial and domestic equipment in the simple preparation of foods and drinks. Includes the presentation and description of service styles. Study of health and safety requirements in the kitchen. Emphasis on the development of the basic concepts of food selection and preparation: salads, vegetables and pastries. Practice in culinary conversions and estimates of the food costs. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: GEMA 1200.

3 credits

HMGT 3302 FOOD AND BEVERAGE MANAGEMENT II
Application of the concepts of the selection, handling and preparation of food made with: eggs, meat, poultry, milk products, seafood and of desserts. Food production and service in small portions. Identification of drinks served with food. Analysis and calculations of prices per portion of foods and drinks. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: HMGT 3301.

3 credits

HMGT 3310 COCKTAIL SERVICES
Provides necessary knowledge for the preparation of a great diversity of alcoholic and non-alcoholic beverages, served in domestic and international settings. Presentation of the techniques, procedures, and practices appropriate for handling and using glassware, materials, and equipment. Application or simulation of the measurements and liquors in mixing drinks. Ethical and legal aspects of the profession.

3 credits

HMGT 3330 HOTEL MANAGEMENT
Analysis of the organizational structure of a hotel and the departments that compose it, the chains of command and inter-departmental relations. Application of managerial functions in a hotel enterprise and the quantitative methods for planning and controlling its operation. Consideration of the different factors that determine the viability of a hotel project. Prerequisites: HMGT 2400, 3010.

3 credits

HMGT 3500 INFORMATION SYSTEMS IN THE HOTEL INDUSTRY
Fundamental aspects of computerized systems and management of information systems in a hotel. Application of the computer to foods and beverages, purchases, sales and accounting. Prerequisites: GEIC 1010, HMGT 3330.

3 credits

HMGT 4303 FOOD AND BEVERAGE MANAGEMENT III
Design of appropriate concepts of food services. Study of the points of control in food and beverage procedures. Establishment of cost controls in food and drinks, from menu planning to service. Simulated laboratory for the development of the concept of a restaurant and drink preparation, as they are included in food services. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: HMGT 3302, ACCT 1162.

3 credits

HMGT 4400 MEETINGS AND CONVENTION MANAGEMENT
Sales process and servicing the meetings market. Identification and study of the segments that form this market. Analysis of effective sales techniques for these markets. Planning and developing different types of services for conventions and meetings. Prerequisites: HMGT 1060, 3010.

3 credits

HMGT 4915-INTERNSHIP IN HOTEL MANAGEMENT
Application of theories and concepts learned in a real setting. Supervised work experience in the field of lodging facilities management under the supervision of a faculty member of the Program. Requires 15 hours of lecture and a minimum of 285 hours in the Practice Center. Prerequisites: HMGT 3302, 3330.

3 credits

Courses in Industrial Engineering (INEN)

INEN 3411 OPTIMIZATION I
Linear programming: problem solutions through the Simplex method, duality concept, sensitivity analysis and the transportation problem. Network programming is included for project management applications: Critical Path Methods (CPM), Program Evaluation and Review Technique (PERT). Prerequisite: ENGR 3200.

3 credits

INEN 3412 OPTIMIZATION II
Application of various optimization methods, including linear programming and applications; dynamic, integer and non-linear programming. Emphasis on formulating, modeling and applications. Computer usage for problem solving. Prerequisite: INEN 3411.

3 credits

INEN 3430 ADVANCED STATISTICS
Application of advanced statistical methods, intervals of confidence, tolerance and prediction. Includes tests of hypothesis of matched data, variance and good-fittness tests. Emphasis on the analysis of variance, multiple regression, transformations, logistic regression and non-parametric methods applied to industrial engineering. Prerequisite: ENGR 3200.

3 credits

INEN 3500 SUSTAINABLE ENGINEERING AND INDUSTRIAL ECOLOGY
Study of environmental aspects, basic understanding of sustainability principles, sustainable energy tools and applications, prevention of pollution, analysis of the life cycle, definitions and principles in industrial ecology, flow of energy and materials throughout industrial systems, examples of green design. Prerequisite: ENGR 3200.

3 credits

INEN 3550 COST CONTROL AND ANALYSIS
Application of principles of accounting: financial reports, work orders. Cost systems: Standard and historic; cost characteristics and control concepts; cost analysis and applications for the decision-making process. Prerequisite: ENGR 3300.

3 credits

INEN 3650 SYSTEMS SIMULATION
Modeling of the relationship between components of systems by computer programs. Generation of random and stochastic variables. Study of highly specialized simulation languages. Statistical considerations for procedures of

simulation. Application of simulation to solution of problems in industrial production and technical services. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: INEN 3411, 3430.

3 credits

INEN 3710 WORK MEASUREMENT
Analysis of work systems. Study of process flow and evaluation, balancing of lines, curves of learning and incentive plan. Design and carrying out time studies, work samplings, use of allowances, predetermined times, performance classification. Evaluation of methods through value engineering, crossover charts, and economic analyses. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: INEN 3430.

4 credits

INEN 3970 TOPICS IN INDUSTRIAL ENGINEERING
Study of contemporary topics in the Industrial Engineering field. Lectures by experts in the specialty. Prerequisites: ENGR 1100, INEN 3430.

1 credit

INEN 4300 QUALITY MEASUREMENT AND ANALYSIS
Application of concepts related to the statistical quality control of processes, plus control graphics for variables and attributes. Includes process-capacity analysis. Analysis, design and planning of samples for inspection. Product acceptance and rework, defect prevention. Modern graphic methods for following and improving quality. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: INEN 3430.

4 credits

INEN 4400 ERGONOMICS AND DESIGN OF WORKSTATIONS
Analysis of limitations and achievement capabilities of human beings. Principles and data for application in equipment design and adaptation to the work place environment. Requires 45 hours of lecture and 30 hours of closed lab. Prerequisite: INEN 3710.

4 credits

INEN 4490 OPERATIONS PLANNING AND CONTROL
Planning and control of production for large-scale operations. Inventory models, and design of inventory systems; techniques to forecast demand; added-production planning. Development of master production schedules. Resources sequencing, programming and dispatching. Basic concepts for Just in Time (JIT) and Materials Requirements Planning (MRP). Emphasis on computer applications for production planning and control. Prerequisites: ENGR 3300, INEN 3411.

3 credits

INEN 4510 DECISION MAKING UNDER UNCERTAINTY
Application of the following decision rules: admissible decision rules, Bayes decision rules and minimal rules. Analysis of criteria for choosing decision rules and their relationship to games theory. Use of linear programming for construction of minimal rules. Includes costs of information gathering into loss function. Problems related to time sequence decisions and their relationship to dynamic programming. Prerequisite: INEN 3411.

3 credits

INEN 4520 SYSTEMS RELIABILITY
Lifetime functions. Point estimation, interval estimation for failure statistical models. Mortality tests, truncated functions. Systems reliability. Reliability software. Reliability increase and handling. Prerequisite: INEN 4300.

3 credits

INEN 4530 VALIDATION OF PHARMACEUTICAL PROCESSES
Application of validation techniques for pharmaceutical processes and their characterization. Includes the validation of water systems, cleaning, automatic systems, computerized systems, as well as the assessment of manufacturing equipment. Emphasis on emerging trends and techniques in validation processes. Prerequisite: INEN 4300.

3 credits

INEN 4545 SUPPLY CHAIN MANAGEMENT
Analysis of the management of the supply chain of internal as well as external companies. Evaluation of the important processes in supply chains and how these add value to the product. Use of information technology for the effective management of materials and logistics. Prerequisite: INEN 4490.

3 credits

INEN 4550 FACILITY LAYOUT AND DESIGN
Application of principles and practice relative to planning, location, and design of facilities and materials handling. Emphasis on operations research techniques to facilities engineering and design. Discussion of technology and the most used equipment for performing materials transport tasks. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: INEN 3720, 4490.

3 credits

INEN 4560 INDUSTRIAL SAFETY
Application of fundamentals of safety engineering. Accident analysis and prevention. Accident associated cost determination. Analysis of causes and consequences of accidents in work areas. Emphasis on the development of a safety philosophy. Prerequisite: INEN 4400.

3 credits

INEN 4570 STOCHASTIC PROCESSES
Application of basic concepts and techniques related to random processes applied to the construction of models for a variety of practical problems. Emphasis on Poisson processes, Markov chains, queuing models, renovation theory and reliability. Prerequisite: INEN 3650.

3 credits

INEN 4580 RESOURCES PROGRAMMING AND ASSIGNMENT
Analysis of programming problems. Resource allocations such as: Includes only one resource, parallel processing and workshops. Application of dynamic and integer programming methodology, heuristic methods and simulation to the solution of problems of the area. Prerequisites: INEN 3411, 3720.

3 credits

INEN 4590 PROJECT MANAGEMENT
Analysis of organizational alternatives of a project and the process stages by controlling the range, time and cost. Integration of a project in its totality: from planning to implementation. Prerequisite: INEN 4490.

3 credits

INEN 4600 AUTOMATED MANUFACTURING
Components and design of automated manufacturing systems, including transfer lines and automated assembly lines. Digitally controlled machines, industrial robots, automated material handling systems. Programmable logic controllers (PLC). Flexible manufacturing systems. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: IMEC 4140.

3 credits

INEN 4611 LEAN SIX SIGMA
Understanding of the impact of the methodology Reads Sigma in the companies. Study and application of tools and methodologies to reduce variability and wastes, to increase production capacity, client satisfaction, and profit. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: INEN 3720.

3 credits

INEN 4612 ADVANCED LEAN SIX SIGMA
Analysis of the impact of the Lean Sigma methodology in companies. Evaluation of practical tools to work projects in the areas of energy, service, health and manufacturing. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: INEN 4611.

3 credits

INEN 4700 DESIGN OF EXPERIMENTS
Analysis and applications of experimentation design such as balanced blocks, incomplete blocks, Latin squares and random blocks. Includes variance and covariance analysis; factorial experiments. Statistical problems for finding process operating optimal conditions. Analysis for methodology of response surface. Prerequisite: INEN 4300.

3 credits

INEN 4810 COMPREHENSIVE DESIGN EXPERIENCE
Emphasis on design skills, teamwork and effective oral and written communication under the supervision of a faculty member. Solution of a real problem in the study area. Demonstration of the capacity to integrate fundamental knowledge of the study area, through design of a methodology, economic evaluation, analysis and optimization. Prerequisites: INEN 4550, 4560 and authorization of the Director of the Department.

3 credits

INEN 4915 PRACTICUM IN INDUSTRIAL ENGINEERING
Practice in a work scenario of industrial engineering in the private industry or the government, supervised by an engineer of the practice center and by a faculty member of the department. Requires a minimum of 135 hours of practice and the preparation of a comprehensive report based on student's real experience in the field of industrial engineering. Prerequisite: Authorization of the department director.

3 credits

INEN 4970 SEMINAR IN INDUSTRIAL ENGINEERING
Discussion of contemporary topics and their application in the service as well as the manufacture areas in the Industrial Engineering field. Lectures by experts in the field. Prerequisite: INEN 3970.

1 credit

Courses in Industrial Relations (INRE)

INRE 2063 INDUSTRIAL SAFETY AND OCCUPATIONAL HEALTH
Introduction to the fundamental concepts of industrial safety and occupational health, covering industrial and environmental factors and hazards, their effects and control. This course is required in the Chemical Technology, Instrumentation Technology and Industrial Management programs.

3 credits

Courses in Installation and Repair of Computerized Systems and Networks (CSIR)

CSIR 1120 COMPUTER PROGRAM DESIGN
Discussion of the fundamental concepts and strategies for the design of computer programs. Emphasis on the use and administration of graphical application programs for the design of schemes and databases. Requires 30 hours of lecture and 45 hours of closed lab.

3 credits

CSIR 1131 ELECTRONICS I
Discussion of the concepts of electricity, electronic components and functions. Analysis of electronic circuits using Kirchhoff's, Thevenir's and Norton's laws and network theorems. Emphasis on the discussion of circuits of direct and alternating current. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: GEMA 1200.

3 credits

CSIR 1210 COMPUTER MATHEMATICS
Boolean algebra, truth tables, numeric systems: Binary, Octal, Hexadecimal. Arithmetic operations and information applications. Symbolic character representation using ASCII.

3 credits

CSIR 1220 DATA COMMUNICATION
Discussion of the concepts and terminology associated with the dynamic industry of data communication. Development of data communication, architecture of data networks, strategies in computer communication, network interconnection, work trends in communication networks.

2 credits

CSIR 1230 MICROCOMPUTER OPERATING SYSTEMS
Discussion of the principles of the functioning of data processing systems by block, multiprogramming, time sharing, memory management, paging, segmentation, virtual memory, expanded memory, life system, I/O operation. The management of components and processors by means of practice in microcomputer operating systems. Requires 30 hours of lecture and 30 hours of closed lab.

3 credits

CSIR 2121 NETWORK ADMINISTRATION I
General knowledge in network administration and its resources. System administration and responsibilities in handling resources, basic components, network types, topologies, expansion and interconnection, network program basic structures, data distribution processes, directory structure, volume pointers, security, supervision, console commands, printing of data. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: CSIR 1220.

3 credits

CSIR 2122 NETWORK ADMINISTRATION II
Knowledge and practice in networks. Installation of network programs in servers and nodes. Physical requirements (processor, memory, communication boards and hard disk), control and supervision of resources and users, setting utilities to user, evaluation of functions, installation of printer servers. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: CSIR 2121.

3 credits

CSIR 2132 ELECTRONICS II
Discussion of alternating current circuits and electronic circuits, solid state devices; semi conducting diodes, bipolar transistors, digital circuits, combinations and sequences. Includes amplifier, rectifier and filter design. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: CSIR 1131.

3 credits

CSIR 2140 MICROPROCESSOR ELECTRONICS
Discussion of the architecture, instruction set, programming and interconnection of microprocessors 8, 16 and 32 binary digits. Includes time diagrams, interrupters and exceptions, handling I/O memory and some support components. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: CSIR 1131, 1210.

3 credits

CSIR 2150 PROGRAM INSTALLATION AND CONFIGURATION IN MICROCOMPUTERS AND NETWORKS
Discussion of the installation and configuration of programs used in the market for personal computers and network systems. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: CSIR 1120, GEIC 1010.

2 credits

CSIR 2160 NETWORK INSTALLATION
Discussion of the planning, design and implantation of a network. Installation and configuration of radio networks and its comparison with those using wiring. Use and administration of network operating systems in servers and nodes. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: CSIR 1230, 2140.

2 credits

CSIR 2210 TECHNICAL MAINTENANCE OF PERSONAL COMPUTER
Discussion of the main indications of computer problems through assembly, design and construction. Analysis of quotations and optimizations of system components. Practice in handling equipment and diagnostic programs for repairing computers. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: CSIR 2140.

3 credits

CSIR 2230 NETWORK DIAGNOSIS, SERVICE AND MAINTENANCE
Network diagnosis, maintenance and service. Application of techniques for the identification of problems or degradation of the system by the use of diagnostic programs. Installing new workstations, servers, and network interconnections. Diagnosis and replacement of physical components of a network. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: CSIR 1220.

3 credits

CSIR 2910 SEMINAR
Practice in the design and configuration of network systems and interconnections and the use of new computer system products on the market. Requires 100 hours of practical experience in the private sector in administration, installation and repair of computer systems. Prerequisite: A minimum of 30 credits of the major requirements.

2 credits

CSIR 3300 ARCHITECTURE OF COMPUTERIZED SYSTEMS
Analysis of the organization and structure of the principal components of computerized systems. Includes multiprocessing, batch processing, multiprogramming, shared time, memory hierarchy, access strategies, virtual memory, processors, cost analysis and considerations in computer design. Prerequisites: CSIR 1120, 1131, 1210, 1220, 1230.

3 credits

CSIR 3310 DATABASE ANALYSIS AND DESIGN
Analysis of different data models. Design and implementation of a database. Includes objectives, functions, models, components and applications of a database system. Operational Requirements: performance, integrity, security, approvals and CSIR. Prerequisites: CSIR 1120, 1230.

3 credits

CSIR 3315 ANALYSIS AND DESIGN OF COMPUTERIZED SYSTEMS
Computer systems analysis and the work environment of system analysts. Identification of the basis ways of design and the principles of project management.

3 credits

CSIR 3510 CREATION OF ELECTRONIC PRESENTATIONS AND PUBLICATIONS
Creation of electronic presentation and publication pages. Use of stationary visuals. Construction of options and suboptions, logical operations and strategies in communication. Includes the creation of a communication service page "Internet.". Requires 15 hours of lecture and 30 hours of closed lab.

2 credits

CSIR 4150 NETWORK SECURITY
Analysis of the processes in the implantation of safety measures in different types of networks and their ethical-legal implications. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: CSIR 2122, 2160.

3 credits

CSIR 4300 INFORMATION SYSTEMS MANAGEMENT
Planning, direction, organization and control of an information processing center. Methods of selection and acquisition of equipment, applications and systems development. Prerequisites: CSIR 1120, BADM 1550.

3 credits

CSIR 4500 COMPUTER ASSEMBLY
Selection and acquisition of parts and equipment for computer construction. Design and construction of a personal computer. The modification process and techniques for implementing the system. Quotation analysis and optimization of system components. Requires 30 hours of lecture and 45 hours of lab.

3 credits

CSIR 4910 INTERNSHIP
Supervised practical experience in a work scenario in the installation, repair, network management and new products of computerized systems, under the supervision of a faculty member. Students are required to devote 200 hours during the academic term in the development of the assigned project. Application of the knowledge, skills and attitudes learned in the laboratory to practical experiences. Prerequisite: Have passed at least 50 credits in the major.
3 credits

CSIR 4950 CURRENT TOPICS IN NETWORK TECHNOLOGY
Analysis of the most recent changes in network technology and their application in the enterprise environment. Prerequisites: CSIR 2122, 2160.
3 credits

Courses in Insurance (INSR)

INSR 1400 INTRODUCTION TO RISK AND INSURANCE
Discussion of the implications of uncertainty and risk problems in society and the techniques for handling them. Emphasis on the theoretical-legal aspects of insurance and their main applications.
3 credits

INSR 1500 INTRODUCTION TO DISABLITY LIFE INSURANCE
Discussion of the principal contracts used to protect people against financial losses attributable to disease, premature death and disability because of age, starting with the economic foundation and basic principles of life insurance. Includes the actuarial and legal aspects and the use of the collective life insurances techniques. Prerequisite: INSR 1400.
3 credits

INSR 1600 LIFE INSURANCE
Discussion of specialized topics on life insurance. Emphasis on the functional aspects of life insurers: selection of risks, establishing rates, reserves and values, reinsurance, marketing and handling investments. Includes commercial uses for life insurance; legal doctrines that govern relations between the insurer and the insured, and beneficiary rights.
3 credits

INSR 1700 EMPLOYEE BENEFITS PLANNING
Discussion of the basic concepts on planning for employee benefits. Emphasis on the applicable risk management principles. Prerequisite: INSR 1500.
3 credits

INSR 1800 PERSONAL USES FOR MULTILINEAR INSURANCE
Discussion of the different types of insurances that the private insurance industry offers to deal with personal risks. Includes the expertise for selecting governmental programs that protect people against certain risks in which the State considers that its intervention is justified.
3 credits

INSR 1900 COMMERCIAL USES AND FUNCTIONAL AND OPERATIONAL ASPECTS OF MULTILINEAR INSURANCE
Discussion of the commercial uses for property, responsibility, and life insurance; as well as the operational and functional aspects of insurers and employee benefit plans. Prerequisite: INSR 1800.
3 credits

Courses in Internal Auditing (INAU)

INAU 4094 EDP AUDITING
Internal auditing techniques. The responsibilities and role of the internal auditor in the EDP field as well as in aspects included in the operational auditing of the computer center. Development of an auditing system for applying

line systems including the controls related to: management, hardware and software, information input and output, data processing, etc. Prerequisites: INAU 4093, ACCT 3030.

4 credits

INAU 4910 INTERNSHIP IN INTERNAL AUDITING
Application of acquired skills through a study program. Students are required to complete 200 hours of supervised practice in an internal auditing office. Prerequisite: INAU 4095.

4 credits

Courses in International Business (INTB)

INTB 2100 INTRODUCTION TO INTERNATIONAL BUSINESS
Study and analysis of international business from the perspective of foreign investment principles, the impact on financial markets, international markets and the operation of multinational corporations. Prerequisite: MKTG 1210.

3 credits

INTB 2200 CULTURAL CONSCIENCE IN INTERNATIONAL BUSINESS
The historical and cultural processes that serve as the framework for economic and business situations in international businesses of different countries and how these situations affect business relationships. The cultures and economic perspectives of Latin American, European and Pacific countries will be analyzed. Prerequisite: MKTG 1210.

3 credits

INTB 2301 PRINCIPLES OF IMPORTS AND EXPORTS
The required steps for importing and exporting a product. Introduction to the functioning of the Federal Customs and State Tax Services, functions of a customs broker, laws and regulations that affect importing and exporting a product. Prerequisite: INTB 2100.

3 credits

INTB 2302 LICENSES AND REGULATIONS FOR IMPORTS AND EXPORTS
Analysis of the requirements of the Federal and State Customs with regard to licensing and the necessary regulations for imports and exports. The Commodity Control List (CCL) and the Export Control Commodity Numbering (ECCN) are studied. The application for licenses to import and export, functions of the customs broker and the Bureau of Export Administration (BXA) are also studied. Prerequisite: INTB 2100.

3 credits

INTB 3330 MANAGEMENT OF HUMAN RESOURCES AT THE INTERNATIONAL LEVEL
Study and analysis of the principles which govern the management of human resources from an international perspective. Emphasis on the recruitment process of persons who will work in conditions different from those prevailing in their place of origin. In addition, emphasis will be placed on decisions made regarding the requirement of the recruitment of nationals as a condition to establish business in a determined country. Study of managerial strategies focused on identifying the differences among countries and the necessary capacitating of employees to perform effectively in these circumstances and to convert this challenge into a competitive benefit. Prerequisites: INTB 2100, BADM 1900.

3 credits

INTB 3600 INTERNATIONAL BUSINESS ENVIRONMENT IN THE AMERICAS, EUROPE AND THE PACIFIC
Study of international business in the Americas, Europe and the Pacific. Analysis of opportunities for exports and imports, the impact of culture, restrictions, regulations and the necessary strategies for entrance to these markets in light of their respective commercial treaties. Prerequisites: INTB 2200, 2301, 2302.

3 credits

INTB 3710 INTERNATIONAL SALES CONTRACTS AND TERMS OF INTERNATIONAL BUSINESS
Study of international sales contracts through analysis of the specific and general conditions in the process of selling products. Discussion of the function of International Business terms in the allocation of risks and costs, as part of the responsibilities among the exporter, importer and transportation companies in international transactions. Prerequisite: INTB 2301.

3 credits

INTB 3750 FINANCIAL INSTITUTIONS AND INTERNATIONAL INVESTMENTS
Analysis of the characteristics and operation of financial markets, the role of intermediaries and other financial institutions in international businesses. Emphasis on the interpretation of financial information, the determination of the exchange rates, and the analysis of the main indices and averages of local and international markets. Identification of the characteristics and the mechanisms of the investment process and the determination of the yields and risk analysis, considering the monetary exchange rate. Includes the main negotiable investments, as well as the characteristics of their respective markets and investment strategies. Prerequisites: FINA 2100, INTB 2100.

3 credits

INTB 3800 ADMINISTRATION OF INTERNATIONAL TRANSPORTATION: OCEAN, AIR AND LAND
Analysis of the selection and management of transportation in international transactions. Study of document management, information systems and inventories for all type of merchandise. Emphasis on the importance of shipments in containers and the function of freight agents in the international environment. Prerequisite: INTB 2301.

3 credits

INTB 3900 MANAGEMENT INFORMATION SYSTEMS IN INTERNATIONAL BUSINESS
Systematic study of existing software for obtaining information by use of computerized technology in international business. Prerequisites: INTB 2100, 2200.

3 credits

INTB 4200 INTERNATIONAL DISTRIBUTION SYSTEMS
Introductory study of the available options for transportation and distribution of goods with regard to a business's imports and exports. Includes distribution and transportation systems by air and sea and market distribution. Emphasis on the selection and evaluation of foreign distributors. Prerequisite: INTB 2100.

3 credits

INTB 4220 INTERNATIONAL BUSINESS STRATEGY
Analysis of the global environment and its impact on strategic planning of international businesses. Review of the concepts and techniques of the planning process and selection of business strategies in the international environment. Includes the identification of existing opportunities, the positioning of the product and promotional strategies, decisions on price and distribution in the international market. Prerequisites: INTB 2100, MKTG 1210.

3 credits

INTB 4911 PRACTICE IN INTERNATIONAL BUSINESS
Supervised work experience in an organization or company related with international business. Students are required to devote at least 90 hours during the academic term. Prerequisites: INTB 2301, 2302 and MAEC 3243.

3 credits

Courses in Italian (ITAL)

ITAL 1001, 1002 ELEMENTARY ITALIAN
Essentials of Italian grammar with emphasis on the spoken language.

4 credits per course

ITAL 2021, 2022 INTERMEDIATE ITALIAN
Review of grammar and study of composition. Continued emphasis on the spoken language. Prerequisite: ITAL 1002 or two years of high school Italian.

3 credits per course

Courses in Landscape Design (LADE)

LADE 2130 CONTROL OF INSECTS AND DISEASE
Techniques and recommendations for the control of insects and diseases of greatest economic impact on the cultivation of ornamental plants. Use of appropriate equipment in the application of insecticides according to norms and regulation established to protect the environment. Requires 22.5 hours of lecture and 30 hours of lab.

2 credits

LADE 2150 SOIL FERTILIZING TECHNOLOGY
Classifications of soil, its physical and chemical properties, topography, erosion, their effects and fertility. The use of fertilizers and their application. Requires 30 hours of lecture and 45 hours of lab.

3 credits

LADE 2260 FOLIAGED PLANTS FOR LANDSCAPING
Selection, use and management of trees, shrubs and lawns by considering the climate, their capacity to adapt, types of growth, physiological requirements, planting, fertilizing and cultivation procedures. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: LADE 1120.

3 credits

Courses in Latin (LATI)

LATI 1001, 1002 ELEMENTARY LATIN
Basic Latin grammar with stress on the relationship among Latin, Spanish and English.

3 credits per course

LATI 2021, 2022 INTERMEDIATE LATIN
Review of Latin grammar. Selected readings from Latin literature. Prerequisite: LATI 1002 or equivalent.

3 credits per course

Courses in Linguistics (LING)

LING 4006 TUTORIAL ENGLISH
Emphasis on solving individual student problems in communication skills. The preparation and writing of a research paper.

3 credits

Courses in Managerial Economics (MAEC)

MAEC 1213 HISTORY OF ECONOMIC THOUGHT
The main currents of economic thought since ancient times to the present. The evolution of economic theories are followed together with their maximum exponents and their impact at different historical stages.

3 credits

MAEC 2140 FOUNDATIONS OF QUANTITATIVE METHODS
Application of mathematics in business administration. Discussion of the variable concepts, joint theory, linear and quadratic functions, linear models, and exponential and logarithmic functions. Use of linear equation and inequation systems, matrices, and linear programming in problem solving. Prerequisite: GEMA 1200.

3 credits

MAEC 2211 PRINCIPLES OF ECONOMICS (MICRO)
Basic theories and principles relative to the operation of the market in an economic system with special emphasis on the microanalysis of the individual decision-making economic units. Prerequisite: GEMA 1200.

3 credits

MAEC 2212 PRINCIPLES OF ECONOMICS (MACRO)
Functioning of the economy as a whole; integration of global economy; principles, hypotheses and theories attempting to explain the macroeconomic process. Prerequisite: MAEC 2211.

3 credits

MAEC 2221 BASIC STATISTICS
Emphasis on the descriptive aspects of statistical analysis. Collection, organization and presentation of statistical data. Frequency distribution. Measures of central tendency, skewness, kurtosis and dispersion. The normal curve and tables. Prerequisite: GEMA 1200.

3 credits

MAEC 2222 MANAGERIAL STATISTICS
Time series analysis; analysis of variance; bivariate linear regression and correlation; tests of significance, statistical quality control; index numbers. Introduction to statistical inference stressed. Prerequisites: MAEC 2140, 2221.

3 credits

MAEC 2320 POLITICAL ECONOMY
Integrated study of political and economic institutions and the effect of their interaction.

3 credits

MAEC 3234 LABOR ECONOMICS
Introduction to the field of labor relations from an economic point of view. The labor force as an economic resource in production as opposed to other production factors: capital and work. Prerequisite: MAEC 2211.

3 credits

MAEC 3235 MONEY AND BANKING
Role of money in the development and financing of financial institutions of a banking and non-banking nature and in the economic system in general. The instruments of the money market, of capital, the role of the Federal Reserve System, monetary policy and the International Monetary Fund are studied. Prerequisite: MAEC 2212.

3 credits

MAEC 3236 PUBLIC FINANCE AND FISCAL POLICY
General survey of governmental finance at the federal, state and local levels with special emphasis on the Puerto Rican setting. Prerequisite: MAEC 2212.

3 credits

MAEC 3240 MATHEMATICS FOR DECISION-MAKING
Functions and relations; functions and their graphs; some basic functional equations in economics. Differential and integral calculus of elementary functions and their application in economic situations. Linear difference in decision-making equations in economics. Matrix and vector analysis and its use in economic analysis. Prerequisite: MAEC 2140.

3 credits

MAEC 3243 INTERNATIONAL ECONOMICS
Survey of the theory of international trade, tariffs, other trade barriers, balance of payments, commercial policies, international finance, foreign exchange rates, foreign investments and international financial institutions. Prerequisite: MAEC 2212.

3 credits

MAEC 3250 INTERMEDIATE STATISTICS
Statistical techniques used in decision-making under uncertain situations: Decision analysis, prediction models, regression and correlation. Prerequisite: MAEC 2222.

3 credits

MAEC 3330 ECONOMIC DEVELOPMENT OF PUERTO RICO
Analysis of the models of economic development implemented throughout the history of Puerto Rico and their possibilities of future development on the basis of their present economic potentialities. Study of economic relations with the United States and the insertion of Puerto Rico into the global economy. Prerequisite: MAEC 2212.

3 credits

MAEC 4210 ECONOMICS OF MULTINATIONAL FIRMS
Operations of multinational firms and the economic analysis of conditions that facilitate or hinder their development.

3 credits

MAEC 4213 MACROECONOMICS APPLIED TO BUSINESS
Analysis of total economic activity and public policy and their effects on enterprise decision making. Prerequisite: MAEC 2212.

3 credits

MAEC 4214 INTERMEDIATE ECONOMIC ANALYSIS (MICRO)
Pricing processes in the private enterprise economy under various isolated and competitive markets. Emphasis on recent quantitative developments in the theory of demand and the firm. Prerequisites: MAEC 2140, 4213.

3 credits

MAEC 4220 INTRODUCTION TO ECONOMETRY
Introduction to the art and science of building and applying economic models using quantitative instruments. Requires additional time in an open lab. Prerequisites: MAEC 2222, 3240, 4213.

3 credits

MAEC 4334 ENERGY RESOURCES AND ENVIRONMENTAL ADMINISTRATION
Theoretical aspects of natural resource allocations stressing those with energy value. Discussion of topics such as inter-temporal methods of assigning resources, external problems applied to environmental economy, optimizing energy resources at the company level, and analysis of aspects of energy and environmental policy as they apply to business.

3 credits

MAEC 4520 ECONOMIC DEVELOPMENT OF EMERGING AREAS
Analysis of the environmental background of the economic growth of nations and their history, emphasizing problems of emerging areas. Prerequisite: MAEC 2211.

3 credits

Courses in Mandarin (MAND)

MAND 1001 BASIC MANDARIN I
Introduction to the phonological system of the language and the foundations of the writing system. Emphasis on oral production and development of vocabulary for effective communication in daily life situations.

4 credits

MAND 1002 BASIC MANDARIN II
Development of the phonological system of the language and the foundations of the writing system. Emphasis on oral production, reading and the development of vocabulary for practical purposes. Cultural aspects will be learned through cocurricular activities.

4 credits

MAND 2021 INTERMEDIATE MANDARIN I
Review of grammar and study of Mandarin composition. Emphasis on the oral language. Practice of reading at the intermediate level. Prerequisites: MAND 1002 or two years of high school Mandarin.

3 credits

MAND 2022 INTERMEDIATE MANDARIN II
Review of grammar and study of Mandarin composition. Emphasis on the oral language. Practice of reading at the intermediate level.

3 credits

Courses in Marketing (MKTG)

MKTG 1210 INTRODUCTION TO MARKETING
Discussion of basic concepts of integrated marketing from the conception of the product until its distribution and use. Identification of consumer needs through the process of goods exchange, services and ideas. Description of the variables that organization can and cannot control in the marketing environment.

3 credits

MKTG 1220 INTRODUCTION TO AGRICULTURAL MARKETING
Introduction to the marketing system from an agricultural perspective. The necessary operations for the distribution of agricultural goods and services from the producer to the consumer. Study of the controlled variables such as products, price, promotion and distribution as well as the non-controlled variables of an agricultural enterprise.

3 credits

MKTG 2220 MARKETING MANAGEMENT
Discussion of the basic concepts of the decisional process of marketing. Analysis of the macro and micro environments with emphasis on competition and the structure of the market. Includes the identification of opportunities and threats. Requires the preparation of a marketing plan for hypothetical or real situations. Prerequisite: MKTG 1210**.**

3 credits

MKTG 2223 CONSUMER BEHAVIOR
Analysis of consumer conduct in the search for alternatives (products or services) that may satisfy their needs and the influence of this process in the managerial decisions of organizations. Discussion of the economic, psychological and sociocultural factors that affect conduct and the decisional process of the consumer. Prerequisite: MKTG 1210.

3 credits

MKTG 2910 INTERNSHIP
Work experience in the sales area supervised jointly by a university professor and a professional designated from the Practice Center. The student is required to devote at least 45 hours during the semester to complete the assigned work. Requires authorization of the Department Director and 18 credits passed in the major.

3 credits

MKTG 3230 INTEGRATED MARKETING COMMUNICATION
Discussion and analysis of the components of marketing communication. Includes publicity, promotion of sales, personal sales, public relations, direct marketing and other nontraditional mass media. Emphasis on the integration of these components within the marketing process; its differences, advantages and disadvantages. Requires the design of a plan of integrated marketing communication. Prerequisite: MKTG 2223.

3 credits

MKTG 3233 PUBLIC RELATIONS IN ORGANIZATIONS
Consideration of the typical interrelations between business organizations and both the internal and external environment. A systematic discussion on how these organizations can develop and maintain a favorable public image. Prerequisite: MKTG 3230.

3 credits

MKTG 3234 PERSONAL SALES
Analysis of the sales process and its role within the global marketing process. Incorporation of the behavioral sciences and commercial strategies for the development of better sales presentations to the client. Prerequisite: MKTG 3230.

3 credits

MKTG 3235 SALES MANAGEMENT
Study of sales management problems. Analysis of sales policies, selection and training of the salesperson, preparation of manuals, compensation methods and sales promotion. Budgeting management. Emphasis on the sales manager's role in business operations. Prerequisite: MKTG 1210.

3 credits

MKTG 3236 RETAIL SELLING
Evolution of retail practices due to changes in consumer behavior and technological advances. Strategies used in buying, promotion, inventory control and in the operation of retail selling establishments. Prerequisite: MKTG 3230.

3 credits

MKTG 3237 SERVICE MARKETING
Analysis of variables contracted by marketing management. Application of marketing strategies to consumer and industrial services. Prerequisite: MKTG 2220.

3 credits

MKTG 3238 PRINCIPLES OF PUBLICITY
Analysis, evaluation and application of fundamental aspects of publicity and its role in contemporary marketing. Emphasis on the concepts of developing advertisement, graphic design, media selection, creative plan, customer service and other aspects related to the publicity campaign. Prerequisites: MKTG 2220, 3230.

3 credits

MKTG 3239 SOCIAL MARKETING
Design, implementation and control of programs developed to achieve a wider acceptance of an idea or of a particular practice in a chosen area of marketing. Prerequisite: MKTG 2220.

3 credits

MKTG 3240 ETHICS IN MARKETING
Ethical principles governing marketing from a primarily management perspective. Ethical and moral variables for decision-making. The company's social responsibility within the philosophical environment of marketing concepts. Discussion of cases and articles describing how decision making is developed, that is, how to distinguish between what is correct and incorrect. Prerequisite: MKTG 1210.

3 credits

MKTG 3241 GRAPHIC ART IN MARKETING
Basic processes of graphic design. Graphic arts used in products and services in industry. Technological aspects in graphics design. Requires 30 hours of lecture and 30 hours of lab.

3 credits

MKTG 3242 DIRECT RESPONSE MARKETING
Components of a new marketing system that uses social communication media to obtain a rapid and measurable reaction to the marketing objective according to the strategies used. Prerequisites: MKTG 2220, 2223, 3230.

3 credits

MKTG 3243 DISTRIBUTION CHANNELS
Mechanisms permitting an efficient and optimum distribution of goods, services and ideas from the producer to the consumer. Selection, configuration and management of distribution channels integrated to the marketing components. Importance of the sales force in product distribution, domestically and internationally. Prerequisite: MKTG 2220.

3 credits

MKTG 4240 CONTEMPORARY STRATEGIC MARKETING
Application of the techniques to identify, analyze and choose markets. Emphasis on the variables of the composition of marketing, includes the design, implementation and evaluation of strategies to solve problems within a

competitive and changing context. Requires the design of a model of strategic marketing planning. Prerequisite: MKTG 2220, 3230.

3 credits

MKTG 4243 MARKETING RESEARCH
Application of marketing research process. Includes the planning process, generation, collection, analysis and reporting of quantitative and cualitative information for the decision-making process. Requires the elaboration of research projects and additional time in an open laboratory. Prerequisites: MKTG 2220, MAEC 2221.

3 credits

MKTG 4244 GLOBAL MARKETING
Analysis of marketing concepts and practices used between different countries. Application of the marketing process, market identification, strategy planning, and modifications and adaptations needed for the operation of marketing in global markets. Requires the elaboration of a marketing plan at the global level. Prerequisite: MKTG 4240.

3 credits

MKTG 4245 ELECTRONIC MARKETING
Analysis, design, development and implementation of technological communication and its impact using cybernetic tools. Emphasis on marketing through Internet and related technological aspects. Application of the electronic communication base in a marketing plan.The design of a marketing plan with an electronic focus is required. Prerequisites: GEIC 1010, MKTG 2220, 4240.

3 credits

MKTG 4246 PRODUCT MANAGEMENT
Elements affecting product management. Analysis of the variables to consider when marketing efforts are coordinated towards a particular product or brand. Prerequisite: MKTG 2220.

3 credits

MKTG 4248 SMALL BUSINESS MARKETING
Marketing theories, principles, concepts and practices in small business. Discussion of articles and cases relative to the establishment of a business and its marketing strategies. External and internal variables that influence the development and marketing process of a small business. Prerequisites: MKTG 2220, 4243.

3 credits

MKTG 4249 ADVANCED MARKETING RESEARCH
Discussion and application of techniques for sampling, analysis and presentation of information obtained from different research designs. The role of research from the perspective of its usefulness in managerial decision-making.

3 credits

MKTG 4910 INTERNSHIP
Practical experience in the field of marketing supervised jointly by a university faculty member and a professional designated by the management of the practice center. The student is required to devote at least 90 hours to complete the work assigned. Prerequisites: Authorization from the Department Director, 24 credits approved in core courses and 24 credits in the major.

3 credits

MKTG 4973 MARKETING SEMINAR
Analysis of topics in marketing with emphasis on modern marketing trends. Topics will change according to student needs, skill development and new knowledge in the field for understanding and integrating current concepts and marketing dynamics. Prerequisites: MKTG 4243, 4244.

3 credits

Courses in Materials Management (MMAT)

MMAT 2103 INTRODUCTION TO MATERIALS MANAGEMENT
Introduction to the systems of planning, organization and control of the flow of materials. Includes the basic elements of inventory systems, available techniques for predicting demand and different types of operational environments. The interaction of the finished product is studied.

3 credits

MMAT 3211 INVENTORY MANAGEMENT
Planning and inventory control systems. Includes inventory decisions for independent and dependent demand, master production plan, materials requirement plan and capacity plan. Includes, in addition, the aspects of management control of these systems, such as: information requirements for planning and control, performance and feedback of results. Practical applications of these concepts using a materials requirement plan. Prerequisites: GEIC 1010, MMAT 2103.

3 credits

MMAT 3212 PLANNING AND PRODUCTION CONTROL
The principles and techniques used for planning, controlling and evaluating production activities. Plans are studied at different time levels: strategic, short and long range, and feedback methods. Different forms of production (workshops, repetitive and process) are studied. Prerequisite: MMAT 3211.

3 credits

MMAT 3220 PURCHASING MANAGEMENT
Techniques related to the purchasing process. Bargaining and contracting in accordance with the commercial code and special laws of Puerto Rico. Identification and development of materials supply sources. Selection of suppliers, control and evaluation of their performance. Computerized purchasing systems, maintenance of a database and the interaction with the materials requirements plan. Prerequisite: MMAT 2103.

3 credits

MMAT 4350 PLANNING OF BUSINESS RESOURCES
The process necessary for implementing the materials requirements plan and the manufacturing resources plan from the world class point of view. Emphasis on information system processing, flow and integration. Prerequisites GEIC 1010, MMAT 3212.

3 credits

MMAT 4360 MANAGERIAL PRODUCTIVITY TECHNIQUES
Managerial productivity strategies and techniques that that may lead an enterprise to low production costs and at the same time, to high-quality products. The Kanban inventory system and its comparison with the materials requirement plan. The classical concept of economic order quantity compared with the policy of not producing and buying by lot, but rather, part by part. Strategy for establishing reliability of suppliers with regard to deliveries and quality levels. Principles of quality management. Analysis of quality circles and analysis techniques. Improvement in productivity by computerized integrated management. Prerequisites: MMAT 3212.

3 credits

Courses in Mathematics (MATH)

MATH 1015 BASIC MATHEMATICS FOR LANDSCAPE DESIGN
Metric decimal system, estimation and mathematical vocabulary: problem solving. Conversion from one system to another. Study of the fundamental concepts of geometry and trigonometry. Surface, volume and angle problem solving.

3 credits

MATH 1020 BUSINESS MATHEMATICS
Review of the basic principles of arithmetic such as decimals, percentages, calculus, squares and square roots.

3 credits

MATH 1030 MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS
Fundamental concepts of arithmetic, numerical systems and geometry. Metric system, mathematical estimates, vocabulary and problem solving. Use of calculators and computers. Prerequisite: GEMA 1000.

3 credits

MATH 1500 PRECALCULUS
Study of functions, with emphasis on linear, polynomical, rational, exponential, logarithmic and trigonometric functions. Operations with functions and inverse functions. Study of analytical trigonometry of complex numbers; linear and nonlinear equation systems, inequalities, matrices, determinants and polar coordinates. Prerequisite: GEMA 1200.

5 credits

MATH 1511 PRECALCULUS I
Study of the functions, its algebra and the inverse function with emphasis on linear, polynomial, rational, exponential and logarithmic functions.

3 credits

MATH 1512 PRECALCULUS II
Study of trigonometric and inverse trigonometric functions. Study of analytical trigonometry of complex numbers; linear and nonlinear equations systems; inequations; matrices; determinants and polar coordinates. Prerequisite: MATH 1511.

3 credits

MATH 2000 DISCRETE METHODS
Theory of sets. Binary operations. Relations and functions. Theory of graphs: trees, Eulerian and Hamiltonian circuits and combinatorial analysis. Motivation of problems and applications; elementary principles of counting; permutations and combinations; principles of inclusion/exclusion; recurrence relations. Prerequisite: GEMA 1200.

3 credits

MATH 2100 INTRODUCTION TO PROBABILITY AND STATISTICS
Experimental and theoretical probability. Emphasis on the relationship between empirical reality and mathematical proof. Elements of probability, probability distributions and elementary theorems of conditional probability. Independent and mutually exclusive events. Measures of central tendency and measures of dispersion. Sampling, frequency distributions, normal distribution, percentiles, scoring and graphs. Confidence intervals. Hypothesis testing, correlation and regression. Use of the graphic calculator and computer software. Prerequisite: MATH 1500.

3 credits

MATH 2250 CALCULUS FOR BIOLOGY AND ENVIRONMENTAL SCIENCES
Study of the fundamental concepts of calculus: limit, continuity, derivatives and integral of polynomial, rational, exponential and logarithmic functions and their applications for the biological and environmental sciences. Application of the derivative for tracing and interpretation of graphs and optimization problems. Prerequisite: MATH 1500.

3 credits

MATH 2251 CALCULUS I
Limits of a function, the derivative, Rolle's theorem and the mean value theorem, application of the derivative. The definite integral and the fundamental theorem of calculus. Derivatives and integrals of trigonometric, exponential and logarithmic functions. Applications of the definite integral. Topics of analytical geometry: the circle, parabola, ellipse, and hyperbola. Prerequisite: MATH 1500.

5 credits

MATH 2252 CALCULUS II
Study of derivatives and integrals of inverse trigonometric, and hyperbolic functions. Techniques of integration and polar coordinates. Application of arc length in polar form. Study of improper integrals, the indeterminant forms and the application of the L'Hôspital rule. Study of sequences and infinite series. Convergence of series.

Representation of functions using power, Taylor and Maclaurin series. Study of the Taylor Theorem and its applications. Prerequisite: MATH 2251.

4 credits

MATH 3080 TOPICS IN GEOMETRY
Basics of mathematical logic, nature of proof, and some Euclidean geometry: finite geometries, geometric transformations, sets and convex bodies. Basics of non-Euclidean geometries; hyperbolic, elliptic and projective geometries; geometric topology. Prerequisite: MATH 2251.

3 credits

MATH 3091 MATHEMATICAL STATISTICS I
Sample spaces, axioms and elementary theorems of conditional probability, Bayes' theorem, probability distributions and their properties. Mathematical expectations. Mean and variance, moment-generating functions, transformation of random variables. Chebyshev's inequality, the law of large numbers, the Central Limit Theorem. Regression and correlation. Prerequisite: MATH 2251.

3 credits

MATH 3092 MATHEMATICAL STATISTICS II
Estimation, hypothesis testing, order statistics. Analysis of variance (ANOVA), factorial experiments, simple and multiple regression. Analysis of covariance (ANACOVA). Prerequisite: MATH 3091.

3 credits

MATH 3130 THEORY OF NUMBERS
Whole numbers. Maximum common divisor and prime factorization. Congruencies and their application. Multiplication functions. Primitive roots and primacy tests. Diophantine equations. Applications to cryptography. Use of computers in an open laboratory. Prerequisite: MATH 2251.

3 credits

MATH 3250 CALCULUS III
Study of the vectors in plane and in space. Cylindrical and spherical coordinates. The calculus of functions of several independent variables: limit, continuity, partial differentiation, chain rule gradient, directional differentiation, tangents planes and normal lines. Determination of extreme values of a two variable function. Multiple integration of rectangular, cylindrical and spherical coordinates. Surface area and volume. Study of integration in vectorial campus: line integrals, divergence theorem and the Green and Stokes theorems. Prerequisite: MATH 2252.

3 credits

MATH 3350 LINEAR ALGEBRA
Systems of linear equations, matrices and determinants, vector spaces, linear dependency, bases, dimension, linear transformations, quadratic forms, eigen values and eigen vectors. Numeric methods and applications. Prerequisite: MATH 2251.

3 credits

MATH 3370 INTRODUCTION TO MATHEMATICAL LOGIC
Calculus of sets, truth rules, propositional calculus. Introduction to axiomatic systems. Prerequisite: MATH 1500.

3 credits

MATH 3400 DIFFERENTIAL EQUATIONS
Study and application of first order differential equations; linear equations with constant coefficients; linear differential equations of the second and highest-order. Study of mathematical models leading to systems of equations and their applications. Numerical approximations. Study of Laplace transforms, Fourier series and orthogonal functions. Prerequisite: MATH 2252.

3 credits

MATH 3710 INTRODUCTION TO MATHEMATICAL MODELS
Concept of a mathematical model. Utility and limitations of models. The three steps: 1) abstraction, idealization and formulation; 2) solution of the mathematical problem; 3) relevance of the solution with respect to the original problem. The student will construct and analyze a model for a particular problem. Prerequisite: MATH 3091.

3 credits

MATH 3810 HISTORY OF MATHEMATICS
Development of mathematics through the centuries. References to astronomy, quantum mechanics and mathematical physics. Prerequisite: MATH 2251.

3 credits

MATH 4100 APPLIED ALGEBRA
Sets, binary relations, set functions, basic graph terminology. Partial order, Boolean Algebras and their relationship to the theory of circuits; machines of finite state; formal languages recognized for machines; groups, semigroups and monoid applications; modular arithmetic, the Euclidean algorithm. Prerequisite: MATH 3350.

3 credits

MATH 4151 NUMERICAL ANALYSIS I
Finite differences, interpolation with equal and unequal intervals, central differences, sums, methods of numerical integration and differentiation, sequential approximations or techniques of iteration, matrices and determinants, methods of numerical approximation for systems of linear equations. Prerequisite: MATH 2252.

3 credits

MATH 4152 NUMERICAL ANALYSIS II
Study of difference equations, numerical integration of differential equations, approximation of solutions; partial differential equations. Analysis of finite elements; error analysis. Proofs of the use and limitations of these methods in the computer. Prerequisites: MATH 3250, 3400, 4151 and a programming course in a high level language.

3 credits

MATH 4391 ABSTRACT ALGEBRA I
Groups, normal subgroups, quotient groups, Cayley's theorem, homomorphism theorems. Ideals and quotient rings. Fields. Prerequisites: MATH 3350 and MATH 2000 or COMP 2501.

3 credits

MATH 4392 ABSTRACT ALGEBRA II
Groups of geometry and analysis, Sylow theorems, application of Sylow's theory, torsion groups, rings of polynomials, extension fields, elements of the Galois theory. Prerequisite: MATH 4391.

3 credits

MATH 4430 SEMINAR FOR SECONDARY SCHOOL TEACHERS
Selection of relevant topics for future high school mathematics teachers. Development of mathematics and its relation to other disciplines. Emphasis on methods of solving problems such as the Polya method. Use of manipulative and available technology. Prerequisite: MATH 2251.

3 credits

MATH 4470 COMPLEX ANALYSIS
Complex differentiation and antidifferentiation, integral formulas of Cauchy-Riemann and related theorems. Taylor and Laurent series, residues and conformal transformations. Prerequisite: MATH 3250.

3 credits

MATH 4550 ADVANCED CALCULUS
Fundamental theorems of continuous functions. Introduction to topology in Euclidean Rn space and in metric spaces. Theory of convergence of sequences and series of functions. Concept of derivatives, the Riemann Integral. Prerequisite: MATH 3250.

3 credits

MATH 4580 INTRODUCTION TO TOPOLOGY
Sets and functions, compactness, metric spaces, topological spaces, separation axioms and connectedness. Prerequisite: MATH 4100 or 4391.

3 credits

MATH 4970 INTEGRATION SEMINAR
Integration of the knowledge acquired in the mathematics courses through the preparation and presentation of an oral and written creative work, using primarily mathematical articles or practical problems related to the major study area of the student. Prerequisite: have approved 38 credits in mathematics.

1 credit

Courses in Mechanical Engineering (MECN)

MECN 3005 VECTORIAL MECHANICS FOR ENGINEERS: STATICS
Analysis of force systems. Application of the law of balance to particles and rigid bodies. Emphasis on problem solving in two and three dimensions. Calculation of the gravity center, centroid and moment of inertia. Analysis of simple structures. Includes distributed weights, internal forces and friction. Analysis of beams under different types of loads and supports. Prerequisite: PHYS 3311.

3 credits

MECN 3010 VECTORIAL MECHANICS FOR ENGINEERS: DYNAMICS
Analysis of fluid properties. Use of fluids static to manometry and hydrostatic forces. Application of the principles of mass and energy conservation, conservation of impulse and amount of linear movement in the solution of dynamics of fluid problems. Development of methodologies for dimensional analysis, similarity and modeling. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: MECN 3010, MATH 3400.

3 credits

MECN 3110 FLUID MECHANICS AND APPLICATIONS
Analysis of fluid properties. Use of fluids static to manometry and hydrostatic forces. Application of the principles of mass and energy conservation, conservation of impulse and amount of linear movement in the solution of dynamics of fluid problems. Development of methodologies for dimensional analysis, similarity and modeling. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: MECN 3010, MATH 3400.

4 credits

MECN 3135 SOLID MECHANICS
Analysis of stress and strain due to axial, torsional, flexural, transversal and combined loads. Analysis of beams with defined and undefined loads. Development of the buckling of columns theory. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: MECN 3010.

4 credits

MECN 3140 POWER SYSTEMS OF FLUIDS
Application of the dynamic principles of fluids in power systems that include the flow of fluids. Integration of the techniques of design and analysis of turbo machines: turbines, compressors, pumps and fans. Study of control systems by means of valves. Plan reading applied to power fluid systems. Prerequisite: MECN 3110.

3 credits

MECN 3160 DYNAMICS OF MOTOR VEHICLES
Analysis of the mechanical principles that govern the dynamic performance of motor vehicles, such as, acceleration, braking, turning, among others. Includes the study of the primary mechanical systems in motor vehicles and how they influence their performance. Prerequisite: MECN 3010.

3 credits

MECN 3200 MECHATRONICS
Analysis of the concepts of mechatronics with emphasis on analog and digital electronics. Study of the sensors and actuators. Emphasis on resistant, capacitive, inductive, and infrared sensors, direct current engines control,

servomotors and pneumatic systems. Design of programs for microcontroller and their applications in electromechanical systems. Prerequisite: ENGR 3360.

3 credits

MECN 3350 EFFICIENCY AIRPLANE DESIGN
Study of the design philosophy applied to the final design of airplanes, through analysis of aerodynamics principles relating sustentation and drag force in two and three dimensions in finite aerodynamic surfaces. Discussion of the methods of propulsion in airplanes. Application of the equations of motion for accelerated and in-balance flights. Prerequisites: MECN 3110 for students in mechanical engineering or ENGR 3340, ENGR 3343 and MATH 3400 for students in the other engineering disciplines.

3 credits

MECN 3400 ANALYSIS AND DESIGN OF SPACE MISSIONS
Analysis of the fundamental characteristics of the orbital motion of satellites and spacecraft. Emphasis on system of aerospace engineering: design, requirements, systems, processes, integration, case studies and ethics. Includes analysis of space missions. Prerequisites: MECN 3110 for students in mechanical engineering or ENGR 3340, ENGR 3343 and MATH 3400 for students in the other engineering disciplines.

3 credits

MECN 3500 NUMERICAL METHODS FOR ENGINEERING
Study of errors in calculations. Analysis of the numerical methods used in engineering problem solving. Emphasis on the solution of linear and non linear equation systems, arrangement of curves, interpolation, integration and derivation by numerical approximation, numerical integration of differential equations and techniques of optimization. Application of computerized programs for problem solving. Prerequisites: MECN 3110, MECN 3135, MATH 3400.

3 credits

MECN 3600 GAS TURBINES AND PROPULSION SYSTEMS
Application of the fundamental concepts of thermodynamics, mechanics of fluids, aerodynamics and theory of flow to the analysis and design of propulsion motors of air and space vehicles. Includes the general classification of the propulsion systems, calculation of the force and propulsive power in an arbitrary environment and output. Study and analysis of the components: inlet duct, compressor, combustion chamber, turbine and exit. Prerequisites: MECN 3350 and MECN 3400.

3 credits

MECN 4100 MECHANICAL VIBRATIONS
Analysis of linear systems with one or more degrees of freedom subjected to free and forced vibrations. Includes matrix representations of multidimensional systems. Application of energy methods and advanced techniques for dynamic systems. Analysis of nonlinear and random systems. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: MECN 3500.

4 credits

MECN 4110 MECHANISMS DESIGN
Analysis of mobility and kinematics of mechanisms. Application of the graphical and computerized techniques of position analysis, speed, and acceleration in mechanisms. Design of levies and gears. Introduction to the synthesis of mechanisms. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ENGR 2220, MECN 3010.

3 credits

MECN 4121 DESIGN OF MACHINE ELEMENTS I
Analysis of solid mechanic concepts such as loads, stress and deformations in the design of machine components and elastic methods for the determination of deflections in beams and buckling of columns. Includes the study of the theories of fault and safety factors. Discussion of impact loads, fatigue, corrosion and wear-down in mechanical components. Prerequisites: ENGR 3350, MECN 3135, 4110.

3 credits

MECN 4122 DESIGN OF MACHINE ELEMENTS II
Analysis of problems in the design of machine elements. Includes design of axles, couplings, wedges, springs, screws, bushings, clutches and brakes. Use of engineering and manufacturing codes and catalogs for the selection of mechanical components. Prerequisite: MECN 4121.

3 credits

MECN 4130 COMPUTER AIDED MANUFACTURING DESIGN
Application of modern techniques used in computer aided design and manufacturing systems. Emphasis on numerical methods, solutions to nonlinear equations, finite elements, and optimization. Modeling and simulation of mechanical systems. Use of techniques and methods for the design of components and computer parts. Prerequisites: ENGR 2220, MECN 4122.

3 credits

MECN 4140 MANUFACTURING PROCESSES
Analysis of the processes and materials of manufacturing. Application of the following processes: smelting, plastic and metal shaping, thermal treatment, welding and powder metallurgy. Includes the processes of turning, milling, cutting and polishing, among others. Analysis of integrated and automated systems for manufacturing. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ENGR 3350.

4 credits

MECN 4150 MANUFACTURING DESIGN
Analysis of the concepts of simultaneous engineering. Application of manufacturing processes knowledge in the product design phase to improve quality and reduce costs. Includes methods of documenting design for manufacture, quality control, selection of dimensions, tolerance and assembly order. Prerequisites: ENGR 3200, MECN 4140.

3 credits

MECN 4201 THERMODYNAMICS I
Analysis of the basic concepts of thermodynamics. Includes the study of the properties of pure substances and the equation of the ideal state of gas. Analysis of the transfer of energy by heat, work and mass. Application of the first and second law of thermodynamics. Analysis of the Carnot Cycle and entropy. Prerequisites: CHEM 2115, PHYS 3312.

3 credits

MECN 4202 THERMODYNAMICS II
Application of the fundamental thermodynamic concepts for the study and analysis of power cycles and refrigeration. Analysis of energy and mixtures of gases. Use of the psychometric chart and theory for the analysis of air conditioning processes. Analysis of combustion, thermo-chemical and heat equilibrium. Study of high speed flow of gas thermodynamics. Prerequisites: MECN 4201, MATH 3250.

3 credits

MECN 4210 HEAT TRANSFER
Analysis of heat transfer mechanisms: conduction, convection and radiation. Study of convection fundamentals and analysis of the empirical coefficients for free and forced convection. Emphasis on physical principles of thermal radiation, surface properties and geometric characteristics. Analysis of heat transfer with phase changes. Heat exchangers design. Prerequisites: MECN 3110, 4201.

3 credits

MECN 4220 DESIGN OF THERMAL SYSTEMS
Thermal systems analysis and designs. Emphasis on heat exchangers, steam generators, cooling towers and air conditioning and refrigeration systems. Use of computational tools for the solution of design problems. Prerequisites: MECN 4202, 4210.

3 credits

MECN 4230 AIR CONDITIONING AND REFRIGERATION
Analysis of refrigeration and air conditioning fundamentals. Emphasis on psychometric computations, comfort and load calculations. Identification of industrial and commercial refrigeration requirements. Selection of equipment: pumps, fans, louvers and heat exchangers. Prerequisites: MECN 4202, 4210.

3 credits

MECN 4240 SOLAR ENERGY APPLICATIONS
Application of the principles of outer-space solar radiation and atmospheric irradiation. Use of prediction and mean value estimates for irradiation by means of mathematical models using tabulated data. Discussion of fluid mechanics and heat-transfer mechanisms, characteristics of materials and surfaces and their impact on energy transfer. Emphasis on economic feasibility analysis. Applications of solar energy in different geographic scenarios. Prerequisite: MECN 4210.

3 credits

MECN 4300 ENGINEERING MATERIALS
Analysis of metal hardening mechanisms. Evaluation of the mechanical, thermal, electrical, magnetic and optic behavior of materials. Study of the kinetics of phase transformations. Emphasis on steel heat treatments. Includes the study of structures, properties and applications of metals, ceramics, semi conductors, polymers and composites. Requires 45 hours of lecture and 30 hours of lab. Prerequisites: ENGR 3350, MECN 3135.

4 credits

MECN 4310 PLASTICS ENGINEERING
Analysis of the chemical-physical properties of plastics. Includes determination of their stress and strain. Applications in design and manufacture of plastics. Manufacturing processes include injection, extrusion, cold stamping, thermosetting, thermomolding, rotational and blow molding. Prerequisite: MECN 4140.

3 credits

MECN 4320 METAL FATIGUE
Analysis of macro and micro-structural concepts in design, and of the mechanisms and theories of fault by fatigue. Emphasis on residual stress, stress concentration, cumulative damage analysis and life utility forecast. Explanation of experimental methods for the study of faults by metal fatigue. Use of computers for fatigue problem solving. Prerequisites: MECN 3135, 4300.

3 credits

MECN 4330 CORROSION CONTROL
Application of electrochemical principles and mechanisms of corrosion. Includes the protection and prevention of metal corrosion. Temperature, metallurgy and environmental effects on metal corrosion. Emphasis on preventive techniques: cathodic protection, proper materials and laminating selection. Prerequisite: MECN 4300.

3 credits

MECN 4340 FRACTURE MECHANICS
Application of mechanical fracture concepts in the design of mechanical structures. Emphasis on the relationship between critical crack size, critical stress and critical intensity factors. Analysis of environmental effects, crack propagation, and fracture tenacity. Explanation of the experimental methods for fault by fractures analysis. Prerequisite: MECN 4300.

3 credits

MECN 4350 AEROSPACE STRUCTURES AND MATERIALS
Analysis of the properties of the wing and fuselage sections. Emphasis on the analysis of beams and plates under buckling conditions. Analysis of torsion, sharp bending and asymmetric bending in multiple sections with thin and lengthy walls. Includes the study of structures, properties and manufacture of materials commonly used in the aerospace industry. Prerequisites: MECN 3350, 3400 and ENGR 3350.

3 credits

MECN 4405 ANALYSIS IN COMPUTER ASSISTED ENGINEERING
Study of methodologies for the integration of design cycle computer analysis in engineering. Emphasis on modeling solids and analysis of finite elements to solve stress problems, structural analysis, fluids and heat transfer. Application of commercial computerized programs for problem solving in mechanical engineering. Prerequisites: MECN 4121, 4210.

3 credits

MECN 4600 MECHANICAL MEASUREMENTS AND INSTRUMENTATION
Analysis of measurement fundamentals. Emphasis on instrument types, characteristics, instrumentation diagrams and statistical analysis of measurement. Study of mechanical and electrical sensors. Emphasis on pressure, level, temperature and flow gauges, and other non conventional measures. Application of computerized techniques for measuring, signal conditioning and data acquisition in industrial processes and electromechanical systems. Requires 45 hours of lecture and 30 hours of lab. Prerequisites: ENGR 3200, ENGR 3360.

4 credits

MECN 4610 AUTOMATIC CONTROL SYSTEMS
Analysis and design of control systems in continuous time. Emphasis on the mathematical modeling of dynamic systems, the Laplace transform, representation of systems by means of block diagrams, variables of states, stability of system and control system characteristics. Design of controllers. Emphasis on proportional, integral, and derivative controllers (PID). Application of control to electromechanical industrial processes and systems. Prerequisite: MECN 4600.

3 credits

MECN 4620 DYNAMICS AND CONTROL OF AEROSPACE VEHICLES
Study and analysis of the dynamic characteristics, designing and control aspects of aerospace vehicles. Emphasis on the analysis of longitudinal, lateral and directional stability and control during atmospheric flights. Includes decision analysis and position control of spacecraft. Prerequisites: MECN 3350, MECN 3400.

3 credits

MECN 4810 PROJECT DESIGN IN MECHANICAL ENGINEERING
Integration of the fundamental knowledge of mechanical engineering for the solution of problems. Study and application of the methodology of design, economic analysis and optimization with emphasis on teamwork and effective oral and written communication. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: authorization of the Director of the Department.

4 credits

MECN 4820 AEROSPACE EXPERIENCE
Integration of the concepts and methods of analyses used in aerospace engineering. Emphasis on the design of spacecrafts. Includes the use of active learning as a tool for the integration of theoretical concepts with the practice exercises by carrying out a project focused on the aerospace area. Prerequisites: MECN 4620, 4350.

3 credits

MECN 4910 PRACTICE IN MECHANICAL ENGINEERING
Practice in a mechanical engineering work scenario in a private industry or in government, supervised by an engineer of the practice center and by a faculty member. Requires a minimum of 120 hours of practice and the preparation of a comprehensive report based on the student's real experience in the field of mechanical engineering. Prerequisite: Authorization of the professor in charge of the course.

3 credits

Courses in Medical Emergencies (EMMT)

EMMT 1161 FUNCTIONS OF THE PARAMEDIC
Exposure of the student to the nature of the paramedic's practice. Discussion of the roles and the medical, ethical and, legal responsibilities, as well as the essential components for the control of different scenarios in which the practice is carried out.

2 credits

EMMT 1162 PRACTICE IN FUNCTIONS OF THE PARAMEDIC
Development of skills in the preparation of clinical history, physical examination of the patient, and communicating effectively the information obtained. Practice in the management of scene control and transportation of patient. Requires 30 hours of lab. Corequisite: EMMT 1161.

1 credit

EMMT 1171 BIOMEDIC I
Study of principles and basic concepts of human anatomy. Emphasis on the anatomy of the intergummentary, muscle-skeletal, nervous, cardiovascular, and respiratory systems of the adult and child.

2 credits

EMMT 1172 PRACTICE IN BIOMEDIC I
Development of the skills to identify anatomic structures of the human body. Emphasis on the anatomic structures of the respiratory system in which the procedures of tracheotomy and circothyrotomy, and the techniques for endotracheal intubation take place. Practice of intubation techniques and evaluation of the respiratory pattern. Requires 30 hours of lab. Corequisite: EMMT 1171.

1 credit

EMMT 1260 BIOMEDIC II
Studies related to the physiology and function of each of the anatomic structures that make up of the human body. Discussion of pathologies of greater incidence, their care and how to handle the scene in order to prevent complications and preserve the life of the patient.

3 credits

EMMT 1271 MEDICAL EMERGENCIES I
Study of emergencies related to the respiratory and cardiovascular systems. Emphasis in the study of signs and symptoms indicative of emergency in these systems.

2 credits

EMMT 1272 PRACTICE IN MEDICAL EMERGENCIES I
Development of skills and practice of techniques, procedures, and use of equipment in the management of respiratory and cardiovascular emergencies. Requires 60 hours of lab. Corequisite: EMMT 1271.

2 credits

EMMT 1280 COMMUNICATION AND DISPATCH TECHNIQUES
Development of skills in the transmission of and reception from radio equipment. Study of rules, types of systems, procedures, and ways of operation of radio communication system. Practice on dispatch techniques. Management of radio communication and dispatch. Requires 60 hours of lab.

2 credits

EMMT 1290 HANDLING OF PATIENTS WITH EMOTIONAL PROBLEMS
Study of the most common emotional problems that the medical emergency technician intervenes with. Discussion of basic components of the psychosocial history of the patient, strategies and modalities for handling these situations and the implied ethical and legal aspects.

2 credits

EMMT 2161 PHARMACOLOGY IN MEDICAL EMERGENCIES
The basic concepts of dosage, and pharmacology, and related medical terminology. Emphasis in pharmacodynamics and pharmacokinetics of medicines. Discussion of legal aspects related to the administration of medicines. Prerequisite: GEMA 1000.

2 credits

EMMT 2162 PRACTICE IN PHARMACOLOGY IN MEDICAL EMERGENCIES
The duties of the medical emergency technician in the preparation and administration of medicines orally, intravenously, intramuscularly, and others. Requires 60 hours of lab. Corequisite: EMMT 2161.

2 credits

EMMT 2171 GYNECOLOGICAL-OBSTETRICAL AND NEWBORN EMERGENCIES
The anatomy and physiology of the female reproductive system, physiology of pregnancy, and gynecological-obstetrical emergencies. Emphasis on the common processes in complications of pregnancy and labor. Discussion of the components of immediate evaluation of the newborn and possible complications.

2 credits

EMMT 2172 PRACTICE IN GYNECOLOGICAL-OBSTETRICAL AND NEWBORN EMERGENCIES
Development of technical skills in the intervention and management of labor and in situations of gynecological emergencies, such as hemorrhages and abortion, among others. Immediate care for the normal newborn and management of complications. Practice in the use of equipment and material for the management of labor and the newborn. Requires 60 hours of lab. Corequisite: EMMT 2171.

2 credits

EMMT 2181 MEDICAL EMERGENCIES II
Study of the management of emergencies related to soft tissue injuries, damage to the muscle-skeletal, neurological and endocrine systems. Knowledge and skills needed for immediate attention on the scene to persons of any age with dysfunction or trauma to those systems.

3 credits

EMMT 2182 PRACTICE IN MEDICAL EMERGENCIES II
Development of skills to give attention to persons with injuries to the soft tissue and to the muscle-skeletal, neurological, and endocrine systems. Practice of techniques and procedures used in the treatment of wounds, burns, fractures, and traumas in different parts of the head, hemorrhages, dislocations, convulsions, and coma. Requires 60 hours of lab. Corequisite: EMMT 2181. Prerequisites: All previous courses.

2 credits

EMMT 2190 EXTRICATION AND RESCUE
The fundamentals and general principles of extrication and rescue. Practice of techniques for rescuing patients. Integrated practice of the types of intervention and paramedic teamwork in the management of emergencies in disaster cases. Requires 60 hours of lab.

2 credits

EMMT 2261 MEDICAL URGENCIES
Study of emergency situations, such as diabetic emergencies, anaphylactic reactions, environmental emergencies or from radiation exposure. Focus on abdominal pathologies, genitourinary problems, and the emergencies of geriatric patients. Study of the most common transmissible diseases. Prerequisites: All previous courses.

3 credits

EMMT 2262 PRACTICE IN MEDICAL URGENCIES
Development of skills in the management of toxicological emergencies. Practice of techniques in the elimination of toxic agents in the organism, and management of emergencies for the ingestion of alcohol or addictive drugs. Requires 30 hours of lab. Corequisite: EMMT 2261. Prerequisites: All previous courses.

1 credit

EMMT 2910 FIELD INTERNSHIP
Integration of knowledge in the different scenarios related with the practice of medical emergencies. Integrated practices in the application of previously acquired clinical skills, refinement of communications skills, problem solving, decision-making, and exercise of clinical judgment. Student will reinforce their identity as paramedics and the ability to manage tension on the scene and in any clinical problem. Values and attitudes are strengthened in the work environment. Requires 180 hours of lab. Prerequisites: All previous courses.

6 credits

Courses in Medical Sonography (SONO)

SONO 3000 BASIC PRINCIPLES OF ULTRASOUND
Study of the basic principles of ultrasound as a diagnosis modality. Includes the terminology and the advanced technology.

3 credits

SONO 3010 PHYSICS AND INSTRUMENTATION OF ULTRASOUND
Study of the basic concepts of the physics of ultrasound and generation of ultrasonic waves. Emphasis on the study of the reflection methods of ultrasonic energy, variation in the patterns of the sound beam, interfaces with techniques of basic instrumentation and the Doppler effect. Includes the discussion of the basic types of equipment and quality assurance.

3 credits

SONO 3021 IMAGES BY ULTRASOUND I: ABDOMEN
Study of the clinical applications of ultrasound for the area of the abdomen and retroperitoneal. Emphasis on the interpretation of clinical laboratory tests, related signs and symptoms and normal sonographic patterns. Includes a section of laboratory in the basic techniques of tracking and protocol. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: SONO 3000, 3010.

3 credits

SONO 3022 IMAGES BY ULTRASOUND II: OB/GYN - PEDIATRIC
Study of the clinical applications of ultrasound in gynecology specialties. Discussion of the related clinical symptoms, normal changes in the pregnant woman and the fetal development throughout the gestation process. Emphasis on the parameters of evaluation of anatomical and functional normality, in addition to the evaluation of the neonatal and pediatric development. Includes a section of laboratory in the basic techniques of tracking and protocol. Requires 30 hours of lecture and 60 hours of lab. Prerequisites: SONO 3010, 3021.

4 credits

SONO 4000 HIGH RESOLUTION SONOGRAPHIES
Study of high resolution ultrasound. Emphasis on the analysis of the sonographies of the breasts, neonatal head, thyroid, testicles and prostate. Includes the innovations in instrumentation and sonographic applications. Prerequisite: SONO 3010.

3 credits

SONO 4010 MUSCLE/SKELETAL SURFACE STRUCTURES SONOGRAPHY
Study of the clinical applications of ultrasound in the skeletal and muscle system for the evaluation of the most frequent pathologies. Discussion of the tendinous pathologies in the shoulder, elbow, fist, knee and ankle, in addition to the diverse traumatic muscular injuries and pathologies of infants. Emphasis on the study of the clinical applications of ultrasound for surface structures of the body. Includes a section of laboratory in the basic techniques of tracking and protocol. Prerequisite: SONO 3010.

3 credits

SONO 4911 INTERNSHIP IN ULTRASOUND I
Clinical experience aimed to develop and improve the professional skills acquired in previous courses for carrying out sonographic procedures with emphasis on the area of the abdomen. The student will be under the supervision of a

qualified sonographer. Requires one hundred eighty (180) hours of practice. Prerequisite: SONO 3010. Corequisite: SONO 3021.

3 credits

SONO 4912 INTERNSHIP IN ULTRASOUND II
Clinical experience aimed to develop and improve the professional skills acquired in previous courses for carrying out sonographic procedures with emphasis on obstetrical, gynecological and pediatric examinations. The student will be under the supervision of a qualified sonographer. Requires one hundred eighty (180) hours of practice. Prerequisite: SONO 4911. Corequisite: SONO 3022.

3 credits

SONO 4913 INTERNSHIP IN ULTRASOUND III
Clinical experience aimed to develop and improve the professional skills acquired in previous courses for carrying out sonographic procedures with emphasis on the skeletal and muscular system and the surface structures of the body. The student will be under the supervision of a qualified sonographer. Requires one hundred eighty (180) hours of practice. Prerequisite: SONO 4912. Corequisite: SONO 4010.

3 credits

SONO 4045 INTRODUCTION TO THE CARDIAC AND VASCULAR SONOGRAPHY
Study of the vascular and cardiac anatomy of sonographic interest. Includes terminology and interpretation of echocardiograms.

3 credits

SONO 4055 CARDIOVASCULAR PATHOPHYSIOLOGY
Advanced study of the structure, function and pathologies of the vascular and cardiac anatomy of sonographic interest. Emphasis on the detection and analysis of cardiovascular disorders such as, cardiomyopathies, congenital defects, among others. Prerequisite: SONO 4045.

3 credits

SONO 4065 INTERMEDIATE VASCULAR SONOGRAPHY
Study of the arterial and venous anatomy, vascular anatomy, protocols of vascular image, basic techniques of tracking and manipulation of the transducer. Emphasis on the B-Mode Image, interpretation of color image and analysis of the Doppler spectral waves. Includes the detection and the analysis of cardiovascular disorders, vascular diseases and their effect on the flow of blood. Prerequisites: SONO 4045, 4055.

3 credits

SONO 4075 ADVANCED VASCULAR SONOGRAPHY
Advanced study of the anatomy and vascular physiology. Discussion of the symptoms of venous and arterial diseases. Includes the tracking techniques and protocols used to diagnose vascular pathologies. Prerequisites: SONO 4045, 4055, 4065.

3 credits

SONO 4914 INTERNSHIP IN VASCULAR ULTRASOUND
Clinical experience aimed to develop and improve the professional skills acquired in previous courses of vascular sonography for carrying out sonographic procedures with emphasis on the vascular structures of the body. The student will be under the supervision of a qualified sonographer. Requires three hundred sixty (360) hours of practice. Prerequisites: SONO 4045, 4055, 4065, 4075.

3 credits

Courses in Medical Technology (MEDT)

MEDT 4501 BASIC PRINCIPLES, STATISTICS AND MOLECULAR TECHNIQUES IN THE CLINICAL LABORATORY
Discussion of basic techniques and concepts of clinical analysis and the associate instrumentation. Includes concepts of molecular biology with emphasis on applied methodology. Study of elements of assessment programs of quality, mathematics, statistics and security of the clinical laboratory. The course consists of 90 hours of lecture-lab and problem solving.

3 credits

MEDT 4510 CLINICAL CHEMISTRY, PATHOLOGY AND MOLECULAR DIAGNOSIS
Discussion of biochemical concepts, principles of analytical, qualitative and quantitative methods for the determination of important clinical compounds in blood and other fluids. Correlation of the results of these tests with the normal physiology and the pathological processes. Molecular diagnosis techniques in acquired or inherited conditions. Assessment quality concepts and security norms. The course consists of 120 hours of lecture-lab and case studies.

4 credits

MEDT 4520 BODY FLUIDS
Review of physical, chemical and biological properties of the fluids the of the human body including the spinal, seminal, synovial, transuded and exuded fluids, urine and others. Emphasis on subjects of anatomy, physiology, pathophysiology and the clinical application. Assessment quality concepts and security norms. The course consists of 30 hours of lecture-lab and the study of clinical cases.

1 credit

MEDT 4531 CLINICAL IMMUNOLOGY
Description of the immune response and its relation to the pathological process and disease diagnosis. Emphasis on immunological and molecular methods in the detection and confirmation of immunopathology. Assessment quality concepts and security norms. The course consists of 60 hours of lecture-lab.

2 credits

MEDT 4532 BLOOD BANKING
Application of the donation processes, hemotherapy, immunogenetic systems and identification of antibodies. Legal medical and ethical aspects, procedures and emergent technology in the diagnosis and treatment of pathological conditions, administration of problems and discrepancies are included. Assessment quality concepts and security norms. The course consists of 90 hours of lecture-lab and case studies.

3 credits

MEDT 4540 HEMATOLOGY, COAGULATION AND MOLECULAR DIAGNOSIS IN HEMATOPATHOLOGY
Discussion of the hematopoietic process. Emphasis on the identification of normal and abnormal elements. Study of the coagulation mechanism and homeostatic conditions and the procedures in the diagnosis, classification, treatment, and molecular diagnosis of hematopathology. Assessment quality concepts and security norms. The course consists of 120 hours of lecture-lab and case studies.

4 credits

MEDT 4560 MYCOLOGY AND VIROLOGY
Explanation of morphologic and biological characteristics of viral and mycotic agents of medical importance. Discussion on the collection and the handling of samples and laboratory methods, transmission modes, epidemiology, pathology, disease prevention and control. Assessment quality concepts and security norms. The course consists of 30 hours of lecture-lab and the study of clinical cases.

1 credit

MEDT 4570 CLINICAL BACTERIOLOGY AND MOLECULAR DIAGNOSIS OF INFECTIOUS DISEASES

Description of laboratory theory and procedures related to the isolation, identification, etiology, the epidemic, the pathogenesis and immunology of clinical bacteriology. Application of the fundamental principles of molecular diagnosis. Assessment quality concepts and security norms. The course consists of 120 hours of lecture-lab and the study of clinical cases.

4 credits

MEDT 4585 CLINICAL PARASITOLOGY

Discussion of the taxonomy, morphology and the life cycle of parasites of medical importance in humans. Identification of clinical signs and symptoms, treatment and epidemiology. Study of the collection and transportation of samples and laboratory methods used to detect and to identify parasites. Assessment quality concepts and security norms. The course consists of 60 hours of lecture-lab and the study of clinical cases.

2 credits

MEDT 4593 LABORATORY ADMINISTRATION, ETHICS AND EDUCATION

Discussion of administration concepts, information systems, professional ethics, personnel recruitment and evaluation, laws and regulations governing the laboratory and the profession. Evaluation of the educational process and the effectiveness of teaching strategies. The course consists of 60 hours of lecture-lab and case studies.

2 credits

MEDT 4595 ADVANCED SEMINAR AND CLINICAL RESEARCH

Design and development of an independent project within an area of the sciences of the clinical laboratory. Integration of the resources for the search for information and the design of the research work. Evaluation and presentation of articles published in scientific magazines or the analysis of clinical cases. Independent studies and lectures on specialized subjects or those related to previous courses. The approval of a comprehensive final examination is required. The course consists of 30 hours of lecture, discussion and presentation of articles and clinical cases.

1 credit

MEDT 4914 CLINICAL PRACTICE IN URINALYSIS

Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 35 hours of practice is required. Prerequisite: MEDT 4520.

1 credit

MEDT 4915 CLINICAL PRACTICE IN BLOOD BANKING

Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 105 hours of practice is required. Prerequisite: MEDT 4532.

3 credits

MEDT 4916 CLINICAL PRACTICE IN IMMUNOLOGY AND SEROLOGY

Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 70 hours of practice is required. Prerequisite: MEDT 4531.

2 credits

MEDT 4919 CLINICAL PRACTICE IN PARASITOLOGY

Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 35 hours of practice is required. Prerequisite: MEDT 4585.

1 credit

MEDT 4921 PRACTICE IN CLINICAL CHEMISTRY
Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 140 hours of practice is required. Prerequisite: MEDT 4510.

4 credits

MEDT 4922 CLINICAL PRACTICE IN HEMATOLOGY AND COAGULATION
Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 140 hours of practice is required. Prerequisite: MEDT 4540.

4 credits

MEDT 4923 CLINICAL PRACTICE IN MICROBIOLOGY
Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 140 hours of practice is required. Prerequisites: MEDT 4560, 4570.

4 credits

Courses in Microbiology (MICR)

MICR 3211 MICROBIAL PHYSIOLOGY
Study of the functions and processes of microorganisms. Includes nutrition, growth, metabolism, placing emphasis on the fermentation and production of energy. The effect of microorganisms in environmental processes is also included. Prerequisite: BIOL 3105.

3 credits

MICR 4010 MICROBIAL ECOLOGY
Study of the ecology of microorganisms, microbial biodiversity, the structure and dynamics of populations of clinical and environmental importance. Analysis of the interactions of microorganisms with plants, animals and other microorganisms that surround them. Discussion of the cycles of nutrients with emphasis on the decomposition of organic matter. Requires thirty hours of lecture and forty-five hours of lab. Prerequisite: BIOL 3105.

3 credits

MICR 4505 MICROBIOLOGICAL APPLICATION TECHNIQUES
Greater emphasis on laboratory skills for handling microorganisms. Refinement of microbiological procedures of techniques of growth curve; nutrition and growth of bacteria; cultivation of anaerobics; DNA extraction and detection; isolation of mutants; transformation, conjugation and recombination in bacteria and bioremediation in soil. Emphasis on the application of asepsis measures and security in a controlled environment. Requires 90 hours of lab. Prerequisites: BIOL 3105, MICR 3211.

2 credits

MICR 4910 INTERNSHIP
Application of microbiological knowledge and skills in a microbiology laboratory. Includes training and oral presentation of work experiences, at the end of the academic term. Students must complete 120 hours of supervised practice. This course must be passed with a minimum grade of C. Prerequisites: MICR 4505, BIOL 4433.

2 credits

Courses in Music (MUSI)

MUSI 101_, 102_ FUNDAMENTALS OF APPLIED MUSIC I, II
Individual instruction in the student's principal instrument: one half-hour class per week. Placement in these courses will be by audition. Courses are for the training of students in the Music Department who lack the skills

required to enter the first level of applied music in their principal instruments. MUSI 1102 requires a performance test before a jury. A minimum grade of 70 percent is required for passing this course. Grade P/NP.

1 credit per course

MUSI 121, 122, 221, 222, 321, 322, 421, 422 APPLIED MUSIC FOR NON-MAJORS
Designed for students other than music majors who intend to learn to play an instrument and for music students who intend to learn a second instrument. The content of the course will depend on students' ability when they begin the first course in the series.

1 credit per course

MUSI 1110 RUDIMENTS OF MUSIC
Study written music, rhythm principles, notes and tones, intervals, scales, triads. Acquire audio, sight-reading and musical dictation skills. Course designed for students with little or no experience in the music field. A minimum grade of 70 percent is required for passing this course. Grade P/NP.

4 credits

MUSI 1131, 1132 GUITAR: GROUP CLASS I, II
Group instruction for students interested in learning the basic fundamentals of the guitar to enable them to play and read melodies, chords and accompanying patterns. This course is not part of the sequence of courses in classical guitar.

1 credit per course

MUSI 1200-1280 CHAMBER ENSEMBLE: INSTRUMENTAL
Study of instrumental repertoire for small and medium-size ensembles. Admission by audition.

1 credit per course

MUSI 1-4 (221, 222) VOCAL CHAMBER ENSEMBLE AND OPERA WORKSHOP
Study and preparation of choral and written operatic repertoire for different vocal ensembles and categories. Entails learning and execution of the singing roles with emphasis on acting. Admission by audition.

1 credit per course

MUSI 1231-32 CONCERT BAND I, II; MUSI 2231-32 CONCERT BAND III, IV; MUSI 3231-32 CONCERT BAND V, VI; MUSI 4321-32 CONCERT BAND VII, VIII
Large instrumental ensemble open to music students and to students majoring in other disciplines. Admission by audition.

1 credit per course

MUSI 1241-42 UNIVERSITY CHOIR I, II; MUSI 2241-42 UNIVERSITY CHOIR III, IV; MUSI 3241-42 UNIVERSITY CHOIR V, VI: MUSI 4241-42 UNIVERSITY CHOIR VII, VIII
Large choral ensemble open to music students and students majoring in other disciplines. Admission by audition.

1 credit per course

MUSI 1 - 4 (251-252) UNIVERSITY ORCHESTRA
Large instrumental ensemble open to music students and to students majoring in other disciplines. Admission by audition.

1 credit per course

MUSI 1311 DRUMS I
Study of theoretical-practical knowledge of the rudiments, reading techniques and coordination necessary for the correct execution on the drums.

1 credit

MUSI 1312 DRUMS II
Refinement of the basic skills of execution on the drums. Study of tuning concepts, new rhythms, musical styles, exercising technique, and musical reading incorporating the use of polyrhythm and rhythmic independence. Prerequisite: MUSI 1311.

1 credit

MUSI 1400 THEORY AND SIGHT-READING
Active study of sight-reading and Music Theory with emphasis on development of auditory skills: reading, rhythmic perception, intonation and dictation. Prerequisites: MUSI 1110 or placement test.

3 credits per course

MUSI 1461, 1462 PIANO: GROUP CLASS I, II
Course to prepare the student to use the keyboard as a means of practicing, applying and demonstrating the skills and concepts acquired in other courses. Basic principles of performance techniques for the piano, in order to facilitate the reading of rhythms, melodies, chords and accompanying routines. Prerequisite: MUSI 1110 or passing a placement test.

1 credit per course

MUSI 2311 DRUMS III
Application of theoretical-practical knowledge of rudiments, techniques and rhythms of the drum in styles of Latin and North American pop music. Emphasis on the development of acquired skills, knowledge of the advanced repertoire of styles, and rhythmical reading at first sight. Prerequisite: MUSI 1312.

1 credit

Courses in Applied Music (MUSI)

Individual instruction on the principal or secondary instrument of the student majoring either in applied music or in music education. Two (2) credits per semester are required for students in applied music and one (1) credit per semester for students in music education. Two (2) credit classes require one hour weekly; the one (1) credit classes require one half-hour lesson per week. Admission to each series of courses depends on an audition. All the courses ending in digit 2 require a practical test before a jury.

MUSI	**1701, 1702, 2701, 2702, 3701, 3702, 4701, 4702**	**FLUTE**
MUSI	**1711, 1712, 2711, 2712, 3711, 3712, 4711, 4712**	**OBOE**
MUSI	**1721, 1722, 2721, 2722, 3721, 3722, 4721, 4722**	**CLARINET**
MUSI	**1731, 1732, 2731, 2732, 3731, 3732, 4731, 4732**	**BASSOON**
MUSI	**1741, 1742, 2741, 2742, 3741, 3742, 4741, 4742**	**SAXOPHONE**
MUSI	**1751, 1752, 2751, 2752, 3751, 3752, 4751, 4752**	**TRUMPET**
MUSI	**1761, 1762, 2761, 2762, 3761, 3762, 4761, 4762**	**HORN**
MUSI	**1771, 1772, 2771, 2772, 3771, 3772, 4771, 4772**	**TROMBONE**
MUSI	**1781, 1782, 2781, 2782, 3781, 3782, 4781, 4782**	**EUPHONIUM**
MUSI	**1791, 1792, 2791, 2792, 3791, 3792, 4791, 4792**	**TUBA**
MUSI	**1801, 1802, 2801, 2802, 3801, 3802, 4801, 4802**	**PERCUSSION**
MUSI	**1811, 1812, 2811, 2812, 3811, 3812, 4811, 4812**	**PIANO**
MUSI	**1821, 1822, 2821, 2822, 3821, 3822, 4821, 4822**	**ORGAN**
MUSI	**1841, 1842, 2841, 2842, 3841, 3842, 4841, 4842**	**VOICE**
MUSI	**1851, 1852, 2851, 2852, 3851, 3852, 4851, 4852**	**VIOLIN**
MUSI	**1861, 1862, 2861, 2862, 3861, 3862, 4861, 4862**	**VIOLA**
MUSI	**1871, 1872, 2871, 2872, 3871, 3872, 4871, 4872**	**CELLO**
MUSI	**1881, 1882, 2881, 2882, 3881, 3882, 4881, 4882**	**CONTRABASS**
MUSI	**1891, 1892, 2891, 2892, 3891, 3892, 4891, 4892**	**CLASSICAL GUITAR**

1 or 2 credits per course

MUSI 1901 ETHNIC PERCUSSION I
Application of performance techniques in the use of instruments for ethnic and folklore music. Includes the refining, projection of sound, memorization and interpretation of basic rhythms from the cultures of regions of Africa, Arabia, Europe, North America and Latin America. Individualized instruction is provided.

1 credit

MUSI 1902 ETHNIC PERCUSSION II
Emphasis on the application of performance techniques in the use of the musical instruments, ethnic and folkloric rhythms and the musical styles of each area. Individualized instruction is provided. Prerequisite: MUSI 1901.

1 credit

MUSI 1991 ELECTRIC BASS I
Individualized introduction to performance on the electric bass. Emphasis on theoretical explanations and practical exercises. Analysis and performance of elementary musical compositions to increase student skills in different rhythms and musical styles.

1 credit

MUSI 1992 ELECTRIC BASS II
Individualized introduction to performance on the electric bass. Emphasis on theoretical explanations and practical exercises. Analysis and performance of intermediate musical compositions to increase student skills in different rhythms and musical styles. Prerequisite: MUSI 1991.

1 credit

MUSI 1993 ELECTRIC BASS III
Individualized introduction to performance on the electric bass. Emphasis on theoretical explanations and practical exercises. Analysis and performance of advanced musical compositions to increase student skills in different rhythm and musical styles. Prerequisite: MUSI 1992.

1 credit

MUSI 1994 ELECTRIC BASS IV
Individualized introduction to performance on the electric bass. Emphasis on theoretical explanations and practical exercises. Analysis and performance of advanced musical compositions to increase student skills in different rhythm and musical styles. Prerequisite: MUSI 1993.

1 credit

MUSI 2411, 2412 HARMONY AND COUNTERPOINT I, II
Detailed study of the formation and linkage of chords, their auditory identification, their analysis and use in accompanying melodies. Includes the dictation of these chords, the intonation of their notes and the melodies they form when linked. Detailed study of the techniques for linking simultaneous melodies, using this material for the practice of sight-reading. Prerequisite: MUSI 1400.

3 credits per course

MUSI 2470 KEYBOARD HARMONY
Course designed to enable students to read, construct, listen to, reproduce, analyze, perform and transpose melody and the chord progressions at the keyboard and to apply and demonstrate the concepts learned in other music courses. Selected repertoire of musical compositions that help to develop the above-mentioned skills. Prerequisite: MUSI 1462.

2 credits

MUSI 2901 ETHNIC PERCUSSION III
Refinement of performance techniques in the use of musical instruments ethnic and folkloric, rhythms and the musical styles of each area. Individualized instruction is provided. Prerequisite MUSI 1902.

1 credit

MUSI 3070 JAZZ IN GUITAR
Acquaintance with modern codes used in jazz, after a study of modern musical nomenclature.

1 credit

MUSI 3130 POPULAR MUSIC WORKSHOP
Study, analysis, arrangement, orchestration and performance of different genres of Puerto Rican and international popular music. Direct experience interpreting diverse genres of popular music.

1 credit

MUSI 3301, 3302 VOCAL TECHNIQUES I, II
The fundamentals of vocal techniques and methodology in vocal-choral instruction. Includes study of the International Phonetic Alphabet and its applications to diction. Study of the basic pronunciation rules in the following languages: Spanish, Italian, French, German and English.

2 credits per course

MUSI 3311, 3312 WESTERN MUSIC: HISTORY AND LITERATURE I, II
Survey of the development of music from its primitive beginnings to the present. The first course includes the history and literature of music up to 1750. The second course covers the period from 1750 to the present.

3 credits per course

MUSI 3320 HISTORY OF PUERTO RICAN AND LATIN AMERICAN MUSIC
Overview of the origins and development of Puerto Rican music. Interaction of Puerto Rican and Latin American music.

2 credits

MUSI 3321, 3322 MUSICAL INSTRUMENT TECHNIQUES I, II
Survey of the technical and practical problems relevant to the teaching of musical instruments. First semester: emphasis on brass and woodwind instruments. Second semester: emphasis on percussion and stringed instruments.

3 credits per course

MUSI 3440 FORM AND ANALYSIS
The musical structures of various historical periods based on the parameters of rhythm, melody and accompaniment already established in the courses on theory and harmony and counterpoint sight-reading. Prerequisites: MUSI 2412.

3 credits

MUSI 4431, 4432 ORCHESTRATION AND ARRANGING I, II
Study and application of the basic techniques in reproducing and adapting original or existing music for solo instruments or varied ensembles, such as choirs, bands, and orchestras. Includes the use of melodic and harmonic dictation and the use of transposition. In addition, a detailed study of the range of each instrument, its particular timbre and the sound combinations resulting from the merging of these instruments. Laboratory hours are required for both courses. Prerequisite: MUSI 3440.

2 credits per course

MUSI 4451, 4452 COMPOSITION I, II
Composition of new musical pieces written for any kind of instrument or ensemble. Interview with the instructor is required for admission.

3 credits per course

MUSI 4500 CONDUCTING I
Basic course in training the student in the principles and practice of conducting. Permission from the instructor of the course is required.

3 credits

MUSI 4510 CONDUCTING II: CHORAL
Use of advanced methods of choral conducting designed for prospective choir directors. Includes materials, repertoire and administration. Prerequisite: MUSI 4500.

2 credits

MUSI 4520 CONDUCTING II: INSTRUMENTAL
Use of advanced methods of instrumental conducting designed for prospective band and orchestra conductors. Includes materials, repertoire and administration. Prerequisite: MUSI 4500.

2 credits

MUSI 4900 RECITAL
Preparation for and performance at a public recital. Audition before a jury is required prior to the recital.

2 credits

Courses in Music Business Management (MUBA)

MUBA 1000 INTRODUCTION TO BUSINESS IN THE MUSIC INDUSTRY
Discussion of the main topics of the music business and the organizations of the music industry.

3 credits

MUBA 1100 MUSIC MARKETING
Discussion of the movement of the recorded and printed product from the concept of the product or its recording to the point of sale. Includes analysis of the applicable marketing structures in the entertainment industry. Prerequisite: MKTG 1210.

3 credits

MUBA 1200 PRINCIPLES OF TREATMENT AND MANAGEMENT OF ARTISTS
Discussion of the managerial aspects directed to the management of careers or artistic groups. Includes talent agencies, personnel management, the hiring until the artistic performance, the trips ("Tours") and artistic promotion. Prerequisite: MUBA 1000.

3 credits

MUBA 1400 LEGAL ASPECTS IN THE MUSIC BUSINESS
Discussion of the legal aspects in the music industry with emphasis on main contracts of industrialists devoted to the music business.

3 credits

Courses in Music Education (MUED)

MUED 4400 ELEMENTARY METHODS: THE TEACHING OF MUSIC
Theories of learning as applied to the teaching of music in the elementary school, lesson planning, experience in the use of the appropriate instruments to be used at this level, songs and demonstration classes. Preparation and evaluation of educational materials. Laboratory work is required. Prerequisites: EDUC 3013, 4011, MUSI 2412, 3301-3302, or 3321-3322, 4500 and Applied Music courses up to level 2002.

2 credits

MUED 4410 SECONDARY METHODS: THE TEACHING OF MUSIC
Exposition and discussion of the philosophy of teaching music at the secondary level, the methodology for the teaching of general music: vocal and instrumental; appreciation and theory. Demonstration classes illustrating this methodology. Preparation and evaluation of educational materials. Laboratory work is required. Prerequisites: EDUC 3013, 4011, MUSI 2412, 3301-3302, or 3321-3322, 4500 and Applied Music courses up to level 2002.

2 credits

MUED 4919 STUDENT TEACHING IN MUSIC: GENERAL-VOCAL
Teaching experience supervised by a university teacher, in the classroom or in other educative settings. Students perform the duties of a regular classroom teacher and show the competencies they have acquired through the academic program. Students must have completed 120 credit hours of which 75 must be in music courses. Students should apply four weeks before the end of the regular semester prior to the semester in which they expect to do their student teaching.

6 credits

MUED 4920 STUDENT TEACHING IN MUSIC: INSTRUMENTAL
Teaching experience in music, supervised by the instructor of the course, in the classroom or any other educational environment. Students perform the duties of a regular classroom teacher and show the competencies they have acquired through the academic program. Students must have completed 120 credit hours of which 75 must be in

music courses. Students should apply four weeks before the end of the regular semester prior to the semester in which they expect to do their student teaching.

6 credits

Courses in Networks and Telecommunications (NTEL)

NTEL 1200 INTRODUCTION TO NETWORKS AND TELECOMMUNICATIONS
Basic concepts of the configuration of local and regional telecommunications networks will be studied. Aspects such as the standards, ISO-OSI model, protocols, Ethernet technology, the Internet and basic communications equipment will be discussed. Emphasis on application programs, servers, administrators and security controllers, among others. Requires 45 hours of lecture-lab and additional time in an open laboratory. Prerequisite: CMIS 2100.

3 credits

NTEL 2101 NETWORK PROTOCOLS
The concepts of protocol communication used in the networks will be established. Ways of installing, administering and correcting information system errors that have network communication protocols incorporated will be presented. Emphasis on the configuration of servers. Also the E-mail communication protocols will also be discussed. Requires 45 hours of lecture-lab and additional time in an open laboratory. Prerequisite: NTEL 1200.

3 credits

NTEL 2150 DESIGN OF TELECOMMUNICATIONS DISTRIBUTION
Discussion of design foundations of the distribution of structured wiring of data networks and telecommunications systems. Includes standards, regulations, the analysis of work areas, horizontal distribution, the backbone, telecommunications rooms, grounding and bonding, and electricity protection. Emphasis on the discussion of techniques to stop fires, tests, project administration, wiring in residences and radio networks. Requires forty-five (45) hours of lecture/lab, and additional time in an Open Laboratory. Prerequisite: NTEL 1200.

3 credits

NTEL 2300 LINUX NETWORKS
General discussion of the Linux operating system. Includes the planning, installation, and administration of Linux. Management of utilities, the NFS file system, the information services of NIS network, the graphical interface of the user, networks configuration, the Open SSH, FTP, HTTPD and SMTP protocols, among others. Integration with other operating systems and Web services configuration. Requires forty-five (45) hours of lecture/lab and additional time in an Open Laboratory. Prerequisite: NTEL 2101.

3 credits

NTEL 3110 INSTALLATION AND ADMINISTRATION OF NETWORK SYSTEMS
Servers of different platforms, their functions in local area networks (LAN), wide area networks (WAN) and their benefit in a client/server environment. Emphasis on the installation of network systems. The configuration and management of local networks will be discussed. Types of equipment, programs, topologies, security, licenses, protocols, client access and user accounts, and other topics will be discussed. The directory systems of the different platforms of network operating systems will be discussed. Requires 45 hours in a closed laboratory. Prerequisites: NTEL 2101, COMP 2120.

3 credits

NTEL 3230 INTRODUCTION TO JAVA PROGRAMMING
Emphasis on the development of applications created with the Java language will occur. Implementation of different versions of Java, integration of Web pages, databases and others. The relationship with C + + language and the new applications of this language will be discussed. The components Java for clients, servers and Internet applications will be discussed. Requires 45 hours of closed lecture-lab. Prerequisites: NTEL 2101, COMP 2120.

3 credits

NTEL 3310 E-MAIL SERVER
Emphasis on the installation and administration of an E-mail server. Discussion of topics on protocols, configuration of mailboxes, distribution lists, public directories, address books directory replies, message transfers,

transport collaboration and services. Includes activities in backup, security remote management and sent and received messages. Requires 45 hours of closed lecture-lab. Prerequisite: NTEL 3110.

3 credits

NTEL 3401 MINICOMPUTERS OPERATIONS
Basic concepts and the introduction to the operation of minicomputers systems will be studied. Includes topics on systems architecture, security, user interface, job management, message handling, printing functions, device configuration, backup, recovery, subsystems, database access, access to clients and determination of basic problems. Requires 45 hours of closed lecture-lab. Prerequisite: NTEL 2101.

3 credits

NTEL 3520 INTERNET PROGRAMMING AND ADMINISTRATION
The concepts necessary to install, form and administer an Internet server based on protocol HTTP will be studied. Emphasis on the FTP Server as repository for archives and programs. Emphasis on tools for the edition and publication of Web Pages. Internet programming languages and graphs and images design will be discussed. The browsers to be used will be established. Requires 45 hours of closed lecture-lab. Prerequisite: NTEL 3110.

3 credits

NTEL 3600 SQL DATABASE SERVER
The basic concepts of the SQL database platform, its architecture, and components will be studied. Aspects, such as the creation of databases, SQL transactions, data integrity, indices, queries and handling of transactions will be discussed. This tool will be focused on the administration and implementation of a SQL server with application to the Web. Requires 45 hours of closed lecture-lab. Prerequisite: NTEL 3110.

3 credits

NTEL 3770 WIRELESS NETWORKS
Discussion of the foundations and techniques for the development of wireless data networks. Emphasis on the IEEE 802.11 B, A and G standards. Analysis of access control to media, security, administration, planning and the development of a radio network. Practice in the installation of antennas, cables, programs and configuration of applications. Prerequisite: NTEL 3110.

3 credits

NTEL 3971 SPECIAL TOPICS IN TELECOMMUNICATIONS
Discussion of current special topics in the field of data networks and telecommunications. Projects of investigation, analysis of cases, critique of articles and visits to computer centers with network infrastructure will be assigned. Prerequisites: NTEL 3750 and authorization of the Academic Director and the Dean of Academic Services.

3 credits

NTEL 4150 SECURITY IN NETWORKS
Analysis of the concepts and techniques for security in data networks. Includes the development and placement of security systems, human resources and the policies of physical safety. Emphasis on models of architecture, threats, attacks, radio networks, viruses, response to incidents, backups and recovery from disasters, risk management, and governmental laws. Exploration of solutions such as digital certificates, security tokens, biometry, cryptography, education and audit, among others. Requires forty-five (45) hours of lecture/lab and additional time in an Open Laboratory. Prerequisite: NTEL 3770.

3 credits

NTEL 4500 AUDIT AND CONTROLS IN NETWORK SYSTEMS
Discussion of the concepts and principles of auditing in networks systems. Example of risks and controls of projects' life cycle. Includes legal and ethical aspects related to privacy. Analysis of the importance of the process of auditing systems in the field of the information technology.

3 credits

NTEL 4520 VOICE AND VIDEO NETWORKS
Analysis of concepts and techniques for the development of voice networks based on IP (VOIP) protocol and solutions for video communication through networks. Emphasis on the study of the initiation of session (SIP)

protocol, networks telephony, voice and video electronic mail, the videoconference and implementation of quality service (QOS). Includes the commutation of multiple protocol labels (MPLS), and the transport real time protocol (RTP). Practice in the development of networks for video communication and virtual meetings. Requires forty-five (45) hours of lecture/lab and additional time in an Open Laboratory. Prerequisite: NTEL 3110.

3 credits

NTEL 4610 STORAGE NETWORKS
Design of storage area networks (SAN). Discussion of planning, development and administration of storage solutions in a data network. Emphasis on the development of technologies such as the optical Fiber Channel architecture, arbitrary repetition technology, factory switch technology, storage security, backup and recovery from disasters. Requires forty-five (45) hours of lecture/lab and additional time in an Open Laboratory. Prerequisite: NTEL 3110.

3 credits

NTEL 4750 NETWORK MANAGEMENT
Analysis of data network management. Discussion of the processes and activities for managing network systems from a managerial perspective. Development of techniques and use of programs for network management, detection of problems, monitoring of traffic in the network, the operator console, reports, statistics, the update of applications and network security. Investigation of SNMP and RMON protocols and use of different solutions for network management. Requires forty-five (45) hours of lecture/lab and additional time in an Open Laboratory. Prerequisite: NTEL 4610.

3 credits

NTEL 4910 PRACTICUM IN TELECOMMUNICATIONS
Supervised work experience in the field of telecommunications or local data networks under the supervision of a faculty member and a practice center supervisor. Require 10 hours of lecture and 180 hours of practice during the semester. Prerequisites: have passed all NTEL courses of levels 1000, 2000 and 3000 up to 4610.

3 credits

Courses in Nursing (NURS)

NURS 1120 BASIC PRINCIPLES AND CONCEPTS OF NURSING
Discussion of the outstanding aspects of the history of the profession over time and the contribution of several theorists in its development. Emphasis on the principles and concepts of the conceptual frame of the Program and on the standards for Nursing practice.

2 credits

NURS 1121 FUNDAMENTALS OF NURSING
Discussion of the Nursing process as a tool for care of the adult by means of the use of the functional patterns of health. Integration of the basic principles and concepts of growth and development; the biophysiological concepts and principles of individuals and their immediate environment. Corequisites: NURS 1120,1122, 1130.

3 credits

NURS 1122 PRACTICE OF FUNDAMENTALS OF NURSING
Application of the Nursing process in the care of adults with common dysfunctions in the functional health patterns that support human functioning. Beginning of the development of clinical skills to perform in the areas of competence as providers of care. Clinical laboratories, with selected experiences, in structured scenarios. Requires 90 hours of clinical lab. Corequisite: NURS 1121.

2 credits

NURS 1130 PHARMACOLOGICAL ASPECTS IN NURSING
Discussion of relevant aspects of the study of the pharmacology including the biochemical, research and legal aspects. Use of the principles and skills of posolgy. Application of the nursing process in medication administration. Requires 45 hours of lecture and 30 hours of open lab. Corequisite: NURS 1121.

3 credits

NURS 1221 FUNDAMENTALS OF PSYCHOSOCIAL CARE
Discussion of theoretical models, principles and concepts of psychosocial nursing. Description of psychosocial dysfunctions of the adult using the nursing process as a framework. Includes neuroanatomy, neurophysiology, ethical-legal, research and communication concepts. Prerequisite: NURS 1121. Corequisite: NURS 1222.

3 credits

NURS 1222 PRACTICE OF PSYCHOSOCIAL CARE
Application of the nursing process, theories models, principles and concepts in psychosocial care of the adult. Practice of therapeutic communication skills in interventions. Requires 60 hours of lab. Prerequisites: NURS 1122, 1130. Corequisite: NURS 1221.

2 credits

NURS 1231 FUNDAMENTALS OF ADULT CARE I
Discussion of the acute and chronic dysfunctions of health related to functional health patterns: perception and health management, nutritional-metabolic and elimination. Includes anatomical, physiopathological, microbiological, biochemical and environmental concepts that affect human functioning. Integration of communication, administration, care management, research and the nursing process skills for client care. Prerequisites: NURS 1121, 1122, 1130. Corequisite: NURS 1232.

6 credits

NURS 1232 PRACTICE OF ADULT CARE I
Application of the nursing process in the care of adults with acute and chronic health dysfunctions integrating the skills of communication, care management and research. Emphasis on management of dysfunctions in the functional patterns: of health perception-management, nutritional-metabolic and elimination. Laboratory in diverse settings. Requires 90 hours of lab. Prerequisites: NURS 1121, 1122, 1130. Corequisite: NURS 1231.

2 credits

NURS 2141 FUNDAMENTALS OF MATERNAL-NEONATAL CARE
Description of the evolution of maternal-neonatal nursing integrating the principles of the conceptual framework. Discussion of anatomical, biochemical, physiopsycological and pathological changes that affect the integral functioning of the client, before, during and after childbirth, including the normal new born during the early neonatal stage. Use of the nursing process in the study of the appropriate changes in the stages and health dysfunctions. Prerequisites: NURS 1221, 1231. Corequisites: NURS 2142, 2233.

3 credits

NURS 2142 PRACTICE IN MATERNAL-NEONATAL CARE
Application of the nursing process in the care of the client during the reproductive cycle including the normal newborn during the early neonatal stage. Requires 60 hours of lab in different scenarios. Prerequisites: NURS 1222, 1231, 1232. Corequisites: NURS 2141, 2233, 2234.

2 credits

NURS 2233 FUNDAMENTALS OF ADULT CARE II
Discussion of the acute and chronic health dysfunctions related to the functional health patterns: activity-exercise, cognitive-perceptual and sexual reproduction. Includes anatomical, physiopathological, microbiological, biochemical and environmental concepts that affect the adult human functioning. Integration of communication, care management, research, and the nursing process skills and the nursing process in client's care. Prerequisite: NURS 1231. Corequisites: NURS 2141, 2142.

6 credits

NURS 2234 PRACTICE OF ADULT CARE II
Application of the nursing process in the care of adults with acute and chronic health dysfunctions integrating communication, care management, and research concepts. Emphasis on the management of dysfunctions related to functional health patterns: activity-exercise, cognitive-perceptual and sexuality-reproduction. Laboratory in diverse settings. Requires 90 hours of laboratory. Prerequisites: NURS 1231, 1232. Corequisites: NURS 2142, 2233.

2 credits

NURS 2351 FUNDAMENTALS OF PEDIATRIC CARE
Discussion of the essential aspects in client care from the late normal neonatal stages to adolescence. Analysis of the dysfunctions in the functional patterns of health by using the nursing process. Use of the physiopathological and environmental concepts and the conceptual framework of curriculum. Prerequisites: NURS 2141, 2142, 2233. Corequisite: NURS 2352.

3 credits

NURS 2352 PRACTICING PEDIATRIC CARE
Application of the nursing process in client care from the normal neonatal stages to adolescence. Emphasis on the management of dysfunctions affecting the functional health patterns using the concepts of curriculum as a framework. Requires 60 hours of lab in clinical scenarios. Prerequisite: NURS 2234. Corequisite: NURS 2351.

2 credits

NURS 3110 DIMENSIONS OF PROFESSIONAL PRACTICE
Analysis of the competence areas: care provider and coordinator, and member of the discipline from the professional dimension. Includes the concepts: humanistic care, ethical-legal responsibility and the nursing process with emphasis on diagnostic and therapeutic reasoning; health education; leadership and management that facilitate dealing with changes in health care systems and the nursing practice. Corequisite NURS 2351 and 2352, if they have not been taken previously, or have an Associate Degree in Nursing.

4 credits

NURS 3120 HEALTH ASSESSMENT
Application of knowledge and skills for a comprehensive health assessment of the client throughout the life span. Emphasis on the compilation and organization of data by means of the physical examination and diagnostic reasoning. Requires 30 hours of lecture and 60 hours of lab in different scenarios. Corequisites: NURS 3110, 3130.

4 credits

NURS 3125 NUTRITION IN PROMOTION
Principles and concepts related to nutrition. The impact nutrition has on the quality of life and promotion of people's health throughout the life cycle, and maintenance and modification strategies.

2 credits

NURS 3130 INTRODUCTION TO THE NURSING RESEARCH PROCESS
Analysis of the research process. Discussion of articles on research applying the process of research critique. Assessment of the contribution of research to the professional practice. Corequisites: NURS 3110, 3120.

2 credits

NURS 3140 INTERVENTION IN PSYCHOSOCIAL TRANSITIONS
Analysis of the trends, theories and concepts that influence the practice of the psychosocial nursing professional. Review of professional nursing interventions that apply to the psychosocial care of individuals, families, groups and vulnerable populations or with persons with dysfunctions in functional health patterns. Integration of communication, ethical-legal, moral spiritual principles and research findings. Corequisites: NURS 3190, 4911.

2 credits

NURS 3180 NURSING PROCESS WITH THE HIGH RISK NEWBORN
Study of the conditions presented by the high risk neonatal. Discussion of ethical, legal, and moral aspects, humanistic principles and those of the nursing profession that should be taken into consideration when intervening with this population. The student will be exposed to reading, interpreting, and identifying the dysrhythmias that the child can present in a Neonatal Intensive Care Unit (NICU). Emphasis on nursing interventions in the different diagnosis, treatment, dosage, ventilation, mechanical and cardiovascular resuscitation tests.

3 credits

NURS 3190 PROFESSIONAL INTERVENTION DURING THE LIFE CYCLE
Analysis of the nursing process as a tool of the professional with emphasis on therapeutic and diagnostic reasoning for decision-making in professional interventions. Review of interventions at the prevention levels when managing human responses in the most common health-illness situations. Includes the ethical-legal concepts and research findings. Requires 30 hours of pediatric content and 30 hours of adult content. Prerequisites: NURS 3110, 3120, 3130. Corequisites: NURS 3140, 4911.

4 credits

NURS 4180 NURSING CARE OF FAMILY AND COMMUNITY
Analysis of selected theories and concepts that facilitate the study of the family as an integral part of the client community. Includes the review of the principles and concepts of epidemiology, biostatistics and demography of public health. Discussion of the nursing process for family and community care with emphasis on the promotion of health and well-being. Ethical-legal, humanist and research concepts. Study of the nursing professional's roles in a culturally diverse community. Prerequisites: NURS 3140, 3190. Corequisite NURS 4914.

4 credits

NURS 4190 PHYSIOPATHOLOGY IN ALTERED FUNCTIONAL PATTERNS
In-depth study of the physiopathological processes that cause or are related to selected alterations in functional health patterns throughout the life cycle and their interrelation. In-depth study of factors contributing to functional alterations, including pathogenic effects produced in an individual's interaction with the environment.

3 credits

NURS 4230 DIVERSE TOPICS
Basic knowledge of organization, integration and reinforcements of content related to care for the following clients: adults, infants, children and adolescents, pregnant women, family and community. Emphasis on mental health clients.

3 credits

NURS 4240 ADMINISTRATION AND SUPERVISION OF NURSING SERVICES
Interpretation of concepts related with management communication between the administrators, supervisors, and collaborators. An integration of the administration, leadership, and total quality concepts in clinical situations. Emphasis on the role of the nursing administrator during the organization of services, decision-making, and assignment of personnel.

3 credits

NURS 4330 BASIC GERONTOLOGY
Physiological, social and emotional alterations in the elderly. Emphasis on promotion and maintenance of health. Applying care strategies in handling changes common to the elderly. Discussion of values and sociocultural stereotypes. Presentation of alternatives for improving health services for the elderly.

2 credits

NURS 4334 HUMAN SEXUALITY
The process of human sexuality throughout the life cycle; its importance, characteristics and implications. Discussion of values, stereotypes and sociocultural influences. Theoretical concepts on group counseling and help strategies.

2 credits

NURS 4911 INTEGRATED PRACTICE I
Application of the nursing process as a tool of the professional with emphasis on therapeutic and diagnostic reasoning for decision-making in professional interventions. Use of interventions at the prevention level for handling human responses in the most frequent health-illness situations. Emphasis on the integrated application of the principles and concepts of communication, health education, ethical-legal aspects, research, leadership and management. Requires 45 hours of clinical practice with the pediatric client and 45 hours with the adult client in diverse scenarios. Prerequisites: NURS 3110, 3120, 3130. Corequisites: NURS 3140, 3190.

3 credits

NURS 4914 INTEGRATED PRACTICE II
Application of the nursing process in the humanist care of family and groups as integrated part of the community as client. Integration of concepts and theories that serve as base of the nursing practice with the family and community. Use of public health concepts, epidemiology, biostatistics, demography and community nursing in the intervention with family and community. Demonstration of planning, coordination, leadership and educational skills in the implementation of intervention strategies. Application of ethical-legal principles and research findings in undertaking the roles of the nursing profession in promoting health and well-being. Requires 120 hours of clinical practice. Prerequisite: NURS 4911. Corequisite NURS 4180.

4 credits

NURS 4980 INTEGRATED WORKSHOP
Integration of knowledge, skills and attitudes in the selection of professional intervention strategies for the processes of problem solving and decision making practice in simulated situations in different scenarios. Use of the scenario categories for effective and safe care, maintenance and promotion of health, and of psychosocial and physiological integration as a frame of reference in intervention with clients. Requires 30 hours of seminar and 90 hours of lab in structured and non-structured scenarios. Prerequisite: NURS 4914.

4 credits

Courses in Occupational Therapy (OCTH)

OCTH 1000 INTRODUCTION TO OCCUPATIONAL THERAPY
Study of the philosophical history and standards of the profession with emphasis on its current functions. Description of the needs in the occupational areas and the factors that contribute to health. Discussion of the ethical-legal elements and the terminology related to the profession. Corequisites: OCTH 1031, 1040, 1050, 1060.

3 credits

OCTH 1031 THERAPEUTIC MODALITIES I
Study of the benefits of therapeutic activities. Development of activities to maximize independence and occupation in any stage of the human life cycle. Design, application, and creative use of games and dynamics, among others, in the clinical scenario. Includes the principles of safety and maintenance in the work areas. Requires 30 hours of lecture and 45 hours of lab. Corequisites: OCTH 1000, 1040, 1050, 1060.

3 credits

OCTH 1040 OCCUPATIONAL SOCIOLOGY
Discussion of the main theoretical aspects of sociology and their relation with occupational therapy. Emphasis on the relevant aspects of social stratification, roles and gender, the sociology of health, work, the sociocultural implications of disease, in addition to the ethical aspects inherent to the profession. Corequisites: OCTH 1000, 1031, 1060, 1050.

3 credits

OCTH 1050 OCCUPATION THROUGHOUT THE LIFE CYCLE
Discussion of developmental theories and the components of occupational performance throughout the life cycle. Emphasis on the functions and tasks expected in each stage of growth and development and the impact of a genetic defect or an acquired dysfunction during life. Integration of the principles of developmental psychology. Corequisites: OCTH 1000, 1031, 1040, 1060.

3 credits

OCTH 1060 ANATOMY AND HUMAN PHYSIOLOGY
Study of the human body as a structural and functional unit. Emphasis on the anatomy of the muscular-skeletal and the central nervous system. Analysis of the pathophysiological processes associated with the nervous system, the upper and lower extremities and the trunk, and their impact on significant human activities. Requires 45 hours of lecture and 30 hours of lab. Corequisites: OCTH 1000, 1031, 1040, 1050.

4 credits

OCTH 1120 PROCESSES IN OCCUPATIONAL THERAPY
Discussion of the processes of adaptation to the environment of individuals with special needs. Evaluation of the importance of the promotion and restoration of physical and mental health. Use of strategies for the energy conservation, protection and the correct use of corporal mechanics. Initiation in the development of interview skills and practice with evaluation and documentation formats. Prerequisites: OCTH 1000, 1031, 1040, 1050, 1060.

3 credits

OCTH 1121 OCCUPATIONAL THERAPY APPLIED TO PEDIATRICS I
Discussion of the acquired or congenital pediatric conditions that require occupational therapy. Observation of the individual to detect the acquisition of the performance skills during the different stages of development. Survey of service scenarios. Requires 30 hours of lecture and 45 of lab. Prerequisites: OCTH 1000.1031, 1040, 1050, 1060.

3 credits

OCTH 1132 THERAPEUTIC MODALITIES II
Study of the basic concepts of the teaching and learning process of therapeutic modalities. Includes clinical skills development in accord with the client's condition and stage of development. Analysis of activities, games and dynamics, among others, as part of the therapeutic plan. Cost analysis, safety measures and protection in the work environment. Emphasis on the function of the occupational therapy assistant in the design and implementation of the intervention plan. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: OCTH 1000, 1031, 1040, 1050, 1060.

3 credits

OCTH 1141 OCCUPATIONAL THERAPY APPLIED TO PSYCHO-SOCIAL DYSFUNCTION I
Identification of the principles of mental health and those mental disorders that alter the functional role of individuals commonly referred for occupational therapy, and the different intervention strategies. Recognition of the reference marks normally used. Prerequisites: OCTH 1000, 1031, 1040, 1050. 1060.

3 credits

OCTH 1911 INSTRUCTIONAL PRACTICE
Supervised clinical practice in a structured scenario. Observation of the therapeutic modalities and interventions applied in different areas. Development of communication skills, observation, clinical judgment and documentation of individualized and group activities. Application of humanism concepts and the code of professional ethics. Requires 145 hours of clinical practice. Prerequisites: OCTH 1120, 1121, 1132, 1141.

3 credits

OCTH 2001 PHYSICAL DYSFUNCTION I
Identification of the clinical conditions commonly referred for occupational therapy: their administration, precautions and interventions. Discussion of the reference marks normally most used in scenarios of physical dysfunction. Requires 30 hours of lecture and 45 of lab. Prerequisite: OCTH 1911.

3 credits

OCTH 2013 THERAPEUTIC MODALITIES III
Analysis of activities, techniques and costs for therapeutic treatment in the sensory motor, psycho-social and cognitive areas, and in daily life activities. Includes the planning and the implementation of activities, such as crafts, games and dynamics. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: OCTH 1911.

3 credits

OCTH 2022 OCCUPATIONAL THERAPY APPLIED TO PEDIATRICS II
Development of procedures and treatments applied to the pediatric client. Study of developmental motor skills, perceptions and principles of self care. Analysis of the appropriate activities in harmony with the growth level and development. Continuous application of occupational therapy services. Prerequisite: OCTH, 1911

3 credits

OCTH 2042 OCCUPATIONAL THERAPY APPLIED TO PSYCHO-SOCIAL DYSFUNCTION II
Analysis of the principles of mental health and those disorders that alter the functional role of individuals. Handling the conditions, precautions and selection of activities of psycho-social intervention. Development of interview techniques and intervention strategies in psycho-social conditions. Prerequisites: OCTH 1000, 1040, 1120, 1132. Corequisite: OCTH 2040.

3 credits

OCTH 2102 PHYSICAL DYSFUNCTION II
Survey of the pathological processes, treatment and the principles of rehabilitation in the individual, as well as special considerations in the geriatric population. Application of physical modalities as a preparatory method for an intervention. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: OCTH 2001, 2013, 2022 and 2042.

3 credits

OCTH 2135 OCCUPATIONAL THERAPY IN DAILY ACTIVITIES
Evaluation of intervention techniques in daily life activities (ADL) and in the instrumental activities of daily life (AIDL). Emphasis on technological assistance, the clothing techniques, food preparation, energy conservation techniques, the protection of joints, the simplification of tasks and ergonomics. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: OCTH 2001, 2013, 2022, 2042.

3 credits

OCTH 2921 CLINICAL PRACTICE I
Development of basic competencies through supervised clinical experience. Emphasis on direct participation with the client in the assigned scenario. Application of screenings, clinical assessment and administrative processes related to the profession. Requires 225 hours of practice. Prerequisites: OCTH 2001, 2013, 2022, 2042.

4 credits

OCTH 2922 CLINICAL PRACTICE II
Development of intervention competencies of an occupational therapy assistant at the entry level. Clinical practice supervised by an appropriately qualified specialist in the assigned scenario. Requires 480 hours of practice. Prerequisites: OCTH 2102, 2135, 2921. Corequisite: OCTH 2975.

8 credits

OCTH 2975 INTEGRATION SEMINAR
Critical analysis of situations and current trends in rehabilitation services. Discussion of cases and application of problem solving processes related to dealing with clients in occupational therapy. Prerequisite: have passed all major courses. Prerequisites: OCTH 1120, 2102, 2135 y 2921. Corequisite: OCTH 2922.

3 credits

Courses in Office Systems Administration (OMSY)

OMSY 1000 KEYBOARDING SKILLS*
Development of basic keyboard skills on a microcomputer. Emphasis on the correct use of alpha, numeric, symbols, and function keyboards. Techniques to achieve speed, accuracy, and proofreading. Productions of documents such as letters, memos, and simple reports.

3 credits

OMSY 1010 SPEED WRITING IN SPANISH
Development of reading, writing and dictation taking skills using an alphabetical system of abbreviated writing. Includes the fundamental principles of the theory of a system of alphabetical writing in Spanish designed for fast writing and reading. Emphasis on transcription skills and taking dictation at optimal levels, vocabulary development, accuracy, checking, spelling and other grammatical aspects. Prerequisite: GESP 1101.

3 credits

OMSY 1015 SPEED WRITING IN ENGLISH
Development of reading, writing, and taking dictation skills using the alphabetic system of abbreviated writing. Includes fundamental principles of the theory of a system of abbreviated writing in English, a system designed for fast writing and reading. Emphasis on the development of transcription skills, and of taking dictation at optimal levels, development of vocabulary, accuracy, proofreading, spelling, and other grammatical aspects. Prerequisite: GEEN 1102 or 1202 or 2312.

3 credits

OMSY 1101 INFORMATION PROCESSING SKILLS I*
Development of skills using the computer keyboard. Introduction to the basic functions of the operative system and of the word processing program in use. Development of basic skills for speed and accuracy and their application to the creation of documents, such as letters, memos, and simple reports. Importance given to the basic techniques of proofreading.

4 credits

OMSY 1102 INFORMATION PROCESSING SKILLS II*
Development of basic skills for speed and accuracy and their application when processing business correspondence in the computer. Development of skills in the production of business documents, such as letters with special lines, manuscripts, tables, agendas, itineraries, envelopes, templates, and statistical forms of frequent use in the office. Prerequisite: OMSY 1101.

4 credits

OMSY 2000 PRODUCTION OF BUSINESS DOCUMENTS*
Application of advanced functions in word processing to the production of complex documents, such as reports with footnotes and endnotes, forms, proposals, documents produced in journalistic and parallel columns, table of contents, indexes, minutes, and labels, among others. Emphasis on the quality of documents, development of basic skills at optimum levels and proofreading. Prerequisite: OMSY 1102.

4 credits

OMSY 2010 TRANSCRIPTION IN SPANISH*
Transcription and edition of commercial document created by means of dictations, manuscripts, e-mails, recordings, document integration and others. Emphasis on the quality and accuracy of the transcription in Spanish when applying the use of proper language. Prerequisites: OMSY 1101, 1010.

3 credits

OMSY 2040 SPREADSHEETS IN OFFICE APPLICATIONS*
Application of skills in the management of electronic spreadsheets. Using the program's tools for producing different documents and financial and statistical reports that are part of the duties of the office systems administrator. Evaluation of information for decision-making . Emphasis on the effective application of the electronic spreadsheet within the context of office systems. Prerequisite: OMSY 1000 or 1101.

3 credits

OMSY 2060 MANAGEMENT OF DOCUMENTS AND DATABASES*
Discussion of the different systems of receiving, classifying, processing, control, filing, and disposition of documents. Emphasis on the theory and concepts related with manual, mechanical and automated systems of handling and locating documents in their administration. Application of skills in the use of a database program under the environment of Windows. Prerequisite: OMSY 1101.

4 credits

OMSY 2230 INFORMATION PROCESSING IN OFFICES OF LEGAL AFFAIRS*
Discussion of terminology of a legal nature and of ethical aspects related to the processing of information in legal affairs offices. Analysis of procedures for preparing and processing documents used in courts and administrative agencies, Property Registry, Demographic Register and the Treasury Department, among others. Includes the creation of formats and the preparation of documents of a legal nature. Prerequisite: OMSY 2000.

3 credits

OMSY 2240 INFORMATION PROCESSING IN OFFICES OF MEDICAL SERVICE *
Discussion of terminology of a legal nature and ethical aspects related to the processing of information in medical service offices. Analysis of the impact of state and federal laws that regulate health services in Puerto Rico. Practice of procedures to prepare and process documents that are used in health service offices. Prerequisite: OMSY 1102.

3 credits

OMSY 3000 MEDICAL SERVICES BILLING*
Study of the fundamental concepts of medical service billing. Basic applications for the processing of billing these services using a computer program. Prerequisite: OMSY 2240.

3 credits

OMSY 3020 HUMAN RESOURCES IN THE ORGANIZATIONAL ENVIRONMENT
The importance of the human resource in an organizational environment. Emphasis on the adequate aspects of personality for working effectively in an office environment. Analysis of teamwork techniques, interpersonal relations, office ethics, communication channels, motivation, employment satisfaction, performance, professional development, and organizational culture.

3 credits

OMSY 3030 BUSINESS COMMUNICATION WORKSHOP IN SPANISH
Development of oral and written communication skills in Spanish. Writing and revision of business documents. Analysis of the basic elements of business communication. A computer will be used for writing and revising business documents. Prerequisites: GESP 1102 or its equivalent, and GEIC 1010.

3 credits

OMSY 3040 BUSINESS COMMUNICATION WORKSHOP IN ENGLISH
Development of oral and written communication skills in English. Emphasis on writing and revising business documents. Application of the language rules and simple oral practices. A computer will be used for the direct writing and revision of business documents. Prerequisites: GEEN 1102 or its equivalent and GEIC 1010.

3 credits

OMSY 3050 GRAPHIC ART DESIGN FOR OFFICES*
Art design using tools available for the computerized preparation of office publications, such as: letterheads, bulletins, announcements, invitations, agendas, programs, brochures, and reviews, among others. Emphasis on creativity and effective use of the resources. Prerequisite: OMSY 2000.

3 credits

OMSY 3060 COMPUTER TRANSCRIPTION*
Practice in the direct production of documents and letters in the word processor. Utilization of dictating equipment and other means of transcribing documents in Spanish and English. Development of grammatical skills. Analysis of diverse systems for management and control of disks and documents. Preparation of different formats of documents. Work will be done with a minimum of instructions. Requires 60 hours of instruction. Prerequisites: OMSY 2000, 3030, 3040.

4 credits

OMSY 3070 SKILLS AND STRATEGIES FOR THE LABOR MARKET
Analysis of strategies for the identification of employment opportunities. Professional application of the concepts and skills to face the challenges of the organizational environment in constant evolution. Emphasis on the discussion of effective means to perform successful through the different stages of the professional career.

3 credits

OMSY 3080 OFFICE SYSTEMS ADMINISTRATION
Evaluation of the impact of technology and global market on business. Discussion of administrative procedures and their application to office systems. Analysis of duties and responsibilities of the office personnel and the impact on

productivity. Emphasis on concepts, such as effective administration of resources, self-business, mail management, decision-making, and quality management applied to processes. Prerequisite: OMSY 1102.

3 credits

OMSY 3500 INTERACTIVE BUSINESS COMMUNICATION IN ENGLISH
Development of oral communication skills and the effective use of business vocabulary. Oral practice in simulations of office situations with the goal of improving pronunciation in the English language and reducing barriers in communication. Technological resources to develop and reinforce oral communication skills. Requires 45 hours of instruction. Prerequisites: GEEN 1103 or its equivalent and OMSY 3040.

3 credits

OMSY 4010 INTEGRATION OF APPLICATION PROGRAMS IN OFFICE ADMINISTRATION*
Integration of the functions of word processing, graphic, art design, electronic spreadsheets, databases and calendars in the preparation of different documents in the office. Prerequisites: OMSY 2000, 2040, 2060, 3050.

3 credits

OMSY 4500 TELECOMMUNICATIONS IN THE OFFICE*
Study of the theoretical and practical basis of telecommunications and their application in business. Development of the necessary basic skills for using tools of e-mail, Internet, electronic calendars, and videoconferencing, among others. Study of the ethical and safety principles when using these tools. Creation of an Internet web page. Prerequisite: OMSY 2000.

3 credits

OMSY 4910 PROFESSIONAL PRACTICUM
Direct on the job training by carrying out the administrative support duties in selected offices in the external community or in the University. Requires 10 hours of lecture and 180 hours of practice. Prerequisites: Have passed all OMSY courses at the 1000, 2000 and 3000 levels and the course 4010. Corequisite: OMSY 4970.

3 credits

OMSY 4970 INTEGRATING SEMINAR
Integration of the knowledge, skills and required attitudes of all members of a work team in an office system. Emphasis on the transition from student to employee. Critical analysis, evaluation and recommendations in facing situations that occur in the work environment. Includes the concepts of the virtual office, labor legislation, globalization and the skills for the preparation of trainings. Prerequisites: OMSY 3080, 4010. Corequisite: OMSY 4910.

3 credits

*** Courses OMSY with an asterisk require a special fee.**

Courses in Optical Science Technology (OPST)

OPST 1000 FUNDAMENTALS OF OPTICS
Description of concepts related to spherical and cylindrical lenses. Discussion of the types of lenses, basic measurement of frames, curvature, transposition and thickness of lenses. Discussion of theoretical concepts on the operations of grinding, neutralizing, and finishing details of the lenses borders. Review of the final presentation of indicated lenses in cases of cataracts, trifocals, prismatic, and other special lenses. Description of the nature of light, propagation, rectilinear, refraction on a flat surface, spherical, aberrations, and physical characteristics of light, of lenses, frames; specifications and types of lenses.

4 credits

OPST 1001 OPHTHALMIC MATERIALS I
Introduction to the field of ophthalmic optics and the duties of an ophthalmic laboratory technician. History of lenses and their optical terminology, characteristics of a lens, metric system and light refraction. Study of graphic nomenclature and optical posters, basic use of the equipment to measure lenses and gauges, use of automatic and manual machinery. Standard alignment of frames for lenses, use of the lens meter and vertometer until the final

production of simple vision lenses. Requires 30 hours of lecture and 30 hours of lab. The laboratory work will be conducted in the centers authorized by the University. Concurrent with PHYS 1013.

3 credits

OPST 1002 OPHTHALMIC MATERIALS II
Emphasis on calculations and formulas to calculate the thickness of lenses and the relation of the center to the thickness of the borders. Includes mounting lenses of higher potency and the importance of the position of lenses, the function of bifocal and multifocal lenses, as well as the appropriate handling of the equipment and related optical illusions. Practice of procedures of finishing details: neutralize, duplicate, trace, demarcate, and bevel simple vision lenses, bifocals, combination and mounting of lenses on a frame. Learning how to drill and mount lenses on a borderless frame, skills to use both hands and automatic equipment related to the operations of finishing details. Identification of frames and patterns for glasses, use of the oven to harden lenses. Repair of frames and interpretation of purchase orders for eyeglasses. Requires 45 hours of lecture and 45 hours of lab. The laboratory work will be conducted in the centers authorized by the University. Prerequisite: OPST 1001.

4 credits

OPST 1020 ANATOMY AND PHYSIOLOGY OF THE EYE
Fundamental concepts of the eye structure and function, vision mechanism, visual field and keenness, subnormal reception and vision. Includes pathophysiological and pharmacological considerations. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: BIOL 1006.

3 credits

OPST 2000 LEGAL CONSIDERATIONS OF OPTICAL PRACTICE
Study and discussion of the ethical behavior code and ethical principles related to the respect for human dignity. Study of the laws that regulate the practice of the optician and those external regulations that are pertinent and apply to local jurisdiction.

2 credits

OPST 2001 CONTACT LENSES I
Discussion of the history of contact lenses and materials used. Integration of basic concepts of the anatomy and physiology of the cornea, keratic topography and its relation to the design of lenses. Description of the use of the keraticmeter and the slit lamp. Discussion of optical principles in the design of contact lenses. Discussion on types of lenses and their availability. Prerequisites: OPST 1000, 1020.

2 credits

OPST 2002 CONTACT LENSES II
Description of concepts regarding the relation of cornea-lens, adjustment of soft contact lens, indications and contraindications for their use. Discussion of methods for the adjustment of therapeutic and cosmetic lenses and principles of estimates and identification of signs and symptoms of Keratoconus. Demonstration of the use of the keraticmeter and the slit lamp. Discussion of the basic principles in the adjustment of rigid contact lenses and of permeable gas. Description and demonstration of refraction techniques. Prerequisite: OPST 2001.

2 credits

OPST 2003 CONTACT LENSES II LABORATORY
Practice in fundamental techniques in the use and adjustment of contact lenses. Discussion of value guides for the evaluation of clients who are candidates to use this type of lens. Use of the bio-microscope, keraticmeter, and radioscopy; strategy for client education on how to care for, clean, place and remove the lenses. Practice of procedures in the design, inspection and removal of lenses, and refraction techniques. Requires 30 hours in a skills lab. The laboratory work will be conducted in the centers authorized by the University. Corequisite: OPST 2002.

2 credits

OPST 2010 PRESCRIPTION DISPATCH I
Study of the principles of professional ethics and responsibilities in the practice of dispatching prescriptions. Calculation and elimination of vertical imbalance through various methods. Application of techniques for taking ocular and facial measurements for simple vision lenses, multifocal, and corrective lenses. Application of appropriate techniques for the adjustment of plastic and metal frames. Development of strategies to solve common

problems of the practice, and necessary skills in the dispatch table. Requires 30 hours of lecture and 30 hours of lab. The laboratory work will be conducted in the centers authorized by the University. Prerequisite: OPST 1001. Corequisite: OPST 1002.

3 credits

OPST 2011 PRESCRIPTION DISPATCH II
Comprehensive integration of the operations of finishing details. Application of basic adjustment techniques, interpretation of complex prescriptions and the effects of changes in the position of the lenses. Adjustment of progressive lenses, of eyeglasses for occupational and vocational use, taking into considerations style and fashion. Application of techniques on the adjustment of metal and borderless frames and frame repair. Discussion on aspects to consider for client education on how to use and care for lenses. Requires 30 hours of lecture and 30 hours of lab. The laboratory work will be conducted in the centers authorized by the University. Prerequisites: OPST 1002, 2010.

3 credits

OPST 2020 SUBNORMAL VISION
Description of the etiology and manifestations of disorders altering the vision mechanism. Development of necessary skills for evaluating subnormal vision with emphasis on records and necessary examinations. Discussion of aids, strategies in the rehabilitation process for improving the visual function and assisting clients with subnormal vision to perform their daily activities. Prerequisite: OPST 1020.

3 credits

OPST 2911 CLINICAL PRACTICE I
Clinical experiences supervised by a licensed optician or optometrist, to provide for the integration and application of technical skills and knowledge acquired by students of optical sciences in previous courses. Demonstration of skills related to the operational aspects of the optical laboratory. Introduction to basic techniques related to issuing prescriptions. Students will apply ethical-legal principles when carrying out their role. Requires 120 hours of supervised clinical practice. The clinical practice will be conducted in the centers authorized by the University. Prerequisites: OPST 1002, 2000, 2010. Corequisites: OPST 2002, 2003, 2011.

2 credits

OPST 2912 CLINICAL PRACTICE II
Clinical experiences supervised by a licensed optician and/or optometrist, to provide for the integration and application of technical skills and knowledge acquired by students of optical sciences in previous courses. Includes the procedures of Clinical Practice I. Emphasis on skills related to the operational aspects of issuing prescriptions. Students will apply ethical-legal principles when carrying out their role. Requires 120 hours of supervised clinical practice. The clinical practice will be conducted in the centers authorized by the University. Prerequisite: have approved all previous major courses. Corequisite: ENDE 1100.

2 credits

Courses in Pharmacy Technician (PHAR)

PHAR 1150 THEORETICAL PHARMACY
Discussion of the origin and evolution of the pharmacy. Includes the types of pharmacy and the components of a prescription counter: equipment, materials and personnel. Analysis of the functions of the Pharmacy Technician in different scenarios. Study of the prescription and its parts, the pharmaceutical abbreviations, the medicine label and the labeling.

3 credits

PHAR 1155 PHARMACEUTICAL LEGISLATION
Study of state and federal laws that govern the pharmaceutical practice related to the production and distribution of product on sale in commercial pharmacies. Includes the labor laws that affect the pharmacy technician and the discussion of basic concepts related to the pharmacy.

2 credits

PHAR 1220 HUMAN ANATOMY AND PHYSIOLOGY
Study of the fundamental concepts of biology with emphasis in the structure and function of the human systems. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: BIOL 1003.

3 credits

PHAR 1221 PHARMACY PRACTICE I
Study of the practical aspects of filling a prescription. Discussion of the aspects related to the equipment used in pharmacies for dispatching solid and liquid medicines and medicines that require composition. Emphasis on federal legend medicines. Requires 30 hours of lecture and 45 hours of lab. Prerequisite PHAR 1150.

3 credits

PHAR 1271 APPLIED PHARMACOLOGY I
Study of drugs in agreement with their therapeutic use and the way medicines work in the digestive, cardiovascular, respiratory and nervous systems. Includes aspects on toxicology, indications, precautions, contraindications and interaction of drugs. Corequisite PHAR 1220.

3 credits

PHAR 1280 DOSAGE
Study of the aspects related to the dosage and the administration and interaction of medicines. Includes the aspects related to appearance, such as injections, liquids, solids, semisolids, and suppositories. Prerequisite: PHAR 1150.

2 credits

PHAR 1290 PHARMACEUTICAL MATHEMATICS
Study of the mathematical foundations and application of pharmaceutical calculations that pharmacy technicians must master to perform adequately in their work scenario. Prerequisite: GEMA 1000.

3 credits

PHAR 2190 INTEGRATION OF PHARMACY CONCEPTS
Integration of concepts and skills related to mathematics, pharmacy practice, pharmacy theory, pharmacotherapy and laws related to the discipline.

2 credits

PHAR 2200 GENERAL CHEMISTRY FOR PHARMACY TECHNICIANS
Theoretical and practical study of the fundamental principles of the structure and behavior of matter, with emphasis on the processes and substances of biological and pharmaceutical importance. In the laboratory there will be emphasis on the practice of analysis techniques. Requires 30 hours of lecture and 45 hours of lab.

3 credits

PHAR 2210 COMMERCIAL PHARMACY
Study of the practical aspects of the functions of the technician in a commercial pharmacy. Includes the purchase and organization of medicines, inventory, medical plans, the manufacturers, the commercial and generic name of drugs, as well as the handling and legal aspects related to controlled products. Application of the computer in the pharmacy and the commercial software used in the prescription processing. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: PHAR 1221.

3 credits

PHAR 2222 PHARMACY PRACTICE II
Discussion of the skills and procedures used in the hospital pharmacy. Includes the study of different over the counter medicines, OTC, contraceptive methods, medicine classification during pregnancy and the health accessories and products on sale in pharmacies. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: PHAR 1221.

3 credits

PHAR 2260 PHARMACOGNOSY
Study of drugs derived from natural products, their origin, extraction and purification methods, their chemical composition, therapeutic use, and their effects on the organism. Includes study of drugs obtained through biosynthesis in pharmaceutical laboratories.

3 credits

PHAR 2272 APPLIED PHARMACOLOGY II
Study of drugs in agreement with their therapeutic use and the way medicines work in the intergumentary, skeleton-muscular, visual, auditory, endocrine, genital-urinary and reproductive systems, as well as the more common infectious processes of these systems. Discussion of aspects on toxicology, indications, precautions, contraindications and interaction of drugs. Study of medicines used in chemotherapy and for the acquired immunodeficiency syndrome. Prerequisite: PHAR 1220.

3 credits

PHAR 2913 SUPERVISED PRACTICE I
Application of the knowledge and skills acquired and related to the use of the minimum equipment available in a prescription counter, the preparation and documentation of the patient profile and the dispatching of a medical prescription accurately. This practice will be performed in a commercial or institutional pharmacy under the supervision of a licensed pharmacist (teacher). The student must obtain the Registration Certificate as a Pharmacy Technician Intern upon meeting the requirements and submitting the documents required by the Board. Requires the authorization of the program coordinator or a representative, a certificate of no criminal record, a health certificate and a negative doping test realized a month before beginning the practice and a certificate of vaccination against hepatitis B. In addition, students must meet any additional requirements the practice center may ask for. Requires a total of 280 hours of practice during the academic term. Prerequisites: PHAR 1155, 1221, 1280, 1290 and 1271 or 2272.

3 credits

PHAR 2914 SUPERVISED PRACTICE II
Application of the knowledge and skills acquired in prescription preparation by means of the use of commercial pharmacy program. Includes the administrative aspects of handling inventory and the purchase of merchandize. This practice will be realized in a commercial or institutional pharmacy under the supervision of a licensed pharmacist (teacher). Student must present a certificate of no criminal record effective and a current health certificate. In addition, they must meet the additional requirements that the practice center may ask for. Requires a total of 360 hours of practice during the academic term. Prerequisite: PHAR 2913.

4 credits

PHAR 2915 SUPERVISED PRACTICE III
Application and integration of the knowledge and skills acquired in a practice in a pharmacy to complete the hours required by the Board of Pharmacy. Emphasis on over the counter medicines (OTC). Includes the sale of health devices and the recommendations for their use. This practice will be realized in a commercial or institutional pharmacy under the supervision of a licensed pharmacist (teacher). Students must present a negative certificate of criminal records, a health certificate and a negative doping test taken a month before beginning the practice. In addition, they must meet the additional requirements that the practice center may ask for. Requires a total of 360 hours of practice during the academic term. Prerequisites: PHAR 1271, 2272, 2260, 2914.

4 credits

Courses in Philosophy (PHIL)

The courses offered in philosophy aim to present the development of philosophy in Western civilization; to introduce the basic issues in the areas of metaphysics, epistemology, logic, ethics and aesthetics; and to encourage students to participate in philosophical thought by developing the ability to think clearly and precisely. No major is offered in philosophy.

PHIL 2013 TYPES AND PROBLEMS IN PHILOSOPHY
Values that arise from the human experience and the attempt to answer basic problems of knowledge, ethics and religion are examined through the different philosophies of life.

3 credits

PHIL 2354 MODERN LOGIC
Study of informal fallacies. Formal logic: the logic of propositions, including the symbolization of propositions and inferences; the truth-table method; and the logic of propositional functions.

3 credits

PHIL 3013 HISTORY OF WESTERN PHILOSOPHY: ANCIENT AND MEDIEVAL
Philosophical thinking from its beginnings in ancient Greece and Rome to the Medieval Age in the context of the social, economic and political forces of the periods.

3 credits

PHIL 3021 HISTORY OF WESTERN PHILOSOPHY
Philosophical thinking from the Renaissance to the philosophy of Immanuel Kant in the 18th century.

3 credits

PHIL 3022 NINETEENTH CENTURY PHILOSOPHY
Study of Comte (Logical Positivism), Nietzsche (the Will to Power), Marx (Dialectical Materialism), Kierkegaard (Existentialism) and other philosophers.

3 credits

PHIL 3044 CONTEMPORARY PHILOSOPHY
The creative evolution of Bergson, the pragmatism of James and Dewey, the philosophy of "Organism" of Whitehead and Russell, the existentialism of Heidegger, Sartre and Jaspers, and the methodology of logical empiricism.

3 credits

PHIL 3365 ETHICS
The development and nature of morality and ethical theories, and the application of ethical principles to present-day problems of personal and social morality.

3 credits

PHIL 3376 SOCIAL PHILOSOPHIES
After a brief historical background, emphasis is placed on various social philosophies.

3 credits

PHIL 4353 PHILOSOPHY OF RELIGION
Critical examination of such religious concepts as God and proof of the existence of God, of what is holy, the problem of evil, miracles, the immortality of the soul, and an examination of the tension between faith and reason.

3 credits

PHIL 4374 PHILOSOPHY OF SCIENCE
After a brief historical background, emphasis is placed on the assumptions of modern science and the meaning of generic concepts in science such as space, time, law, causality, and the content and values of scientific knowledge and their implications.

3 credits

PHIL 4385 PHILOSOPHY OF HISTORY
After a historical background, emphasis is placed on modern philosophies of history: Spengler, Toynbee, Schweitzer, Whitehead, Northrop and others.

3 credits

Courses in Physical Therapy (PHTH)

PHTH 1000 INTRODUCTION TO PHYSICAL THERAPY
Description of the historical development of the physical therapy profession. Discussion of physical therapy as a profession, the role and functions of the physical therapy assistant as well as the relation between the physical therapy assistant and the registered physical therapist; the interdisciplinary team within the system of health service providers. Explanation of the practice areas of the discipline, professional physical therapy organizations, standards, ethical-legal aspects related to the practice and the social responsibility of the physical therapy assistant. Corequisite: PHTH 1010.

3 credits

PHTH 1010 PRINCIPLES OF PATIENT CARE
Description of the basic principles of patient care in physical therapy. Discussion of the concepts related to the control of infections and the taking of vital signs. Application of techniques related to corporal mechanics during the transfer and basic positioning of the patient and the use of the wheelchair. Emphasis on the basic fundamentals for the care of wounds, application of bandages and basic actions in an emergency situation. Corequisite: PHTH 1211.

3 credits

PHTH 1211 ANATOMY AND PHYSIOLOGY I
Integration of theory and laboratory skills for investigation of the structure and function of the human body. Study of the corporal organization at its different levels, the importance of chemistry in corporal processes, the corporal systems related to support and movement, and how these systems work to maintain homeostasis. Includes the study of the structure and function of the following systems: integumentary cardiovascular, respiratory, skeletal, muscular and nervous, (central and peripheral). Requires 45 hours of lecture and 45 hours of closed lab.

4 credits

PHTH 1212 ANATOMY AND PHYSIOLOGY II
Integration of the theory for researching the structure and function of the human body at its different levels. The importance of chemistry in the corporal processes and how the systems work to maintain homeostasis. Includes the structure and the function of the following systems: sensorial, lymphatic, immunological, endocrine, digestive, urinary and reproductive.

2 credits

PHTH 1222 THERAPEUTIC MODALITIES
Study of the principles and practices of physical therapy when applying the following therapeutic modalities: application of heat and cold, massage, traction and intermittent compression, thermotherapy, hydrotherapy, light therapy and electrotherapeutics. Discussion of the effect of the physical agents in dealing with pain and the inflammatory process. Requires 45 hours lecture and 90 hours of closed lab. Prerequisites: PHTH 1000, 1010, 1211. Corequisites: PHTH 1212, 1223.

5 credits

PHTH 1223 PATHOLOGY
Discussion of the pathophysiological process of diseases and dysfunctions commonly found in physical therapy practice in the geriatric and pediatric populations, and in those related to sports. Emphasis on the description of etiology, clinical manifestations and pattern of incapacity in pathological conditions related to the muscle-skeletal and neurological systems. Identification of the implications that diseases have for rehabilitation in physical therapy. Prerequisites: PHTH 1000, 1010 , 1211. Corequisites: PHTH 1212, 1222.

3 credits

PHTH 2050 DIMENSION OF INCAPACITY
Discussion of the psychological, sociological and emotional elements as well as their impact on the rehabilitation of the patient. Emphasis on the emotional biases and the physical restrictions in the corporal image and in the sensorial perceptual process. Prerequisite: PHTH 1000.

2 credits

PHTH 2051 PROFESSIONAL COMMUNICATION SKILLS IN PHYSICAL THERAPY
Development of skills in data collection, evaluation and documentation of verbal and written reports. Principles of communication between the patient and the physical therapy assistant, the assistant and the physical therapist, as well as with other members of the health team. Prerequisites: PHTH 1000, 1010.

2 credits

PHTH 2053 CARDIOPULMONARY PHYSICAL THERAPY
Discussion of the pathophysiological process of diseases and dysfunctions of the cardiovascular and respiratory system commonly found in the practice of physical therapy. Emphasis on etiology, clinical manifestations and pattern of incapacity in cardiopulmonary conditions. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: PHTH 1212, 1222, 1223.

3 credits

PHTH 2054 KINESIOLOGY AND FUNCTIONAL ANATOMY
Advanced study of the structure and function of the skeletal, muscular and nervous systems as well as their applications. Includes goniometry, tests of muscular force, analysis of ambulation and posture. Requires 30 hours of lecture and 45 hours of closed lab.

3 credits

PHTH 2055 GROWTH AND HUMAN DEVELOPMENT
Review of the basic knowledge of the theories of growth and development, as well as of the changes that occur throughout the life cycle. Study of physical, mental, emotional and sociocultural aspects typical of development. Emphasis on concepts of control and motor learning. Includes basic concepts of development and aging of the corporal systems.

2 credits

PHTH 2151 ORTHOPEDIC REHABILITATION
Discussion of basic fundamentals for the rehabilitation of orthopedic conditions. Emphasis on interventions related to measurement and tests of the muscular and skeletal system, such as scope of movements, goniometry and muscular tests. Includes interventions, such as training, therapeutic and postural exercises, among others. Requires 30 hours lecture and 45 hours of closed lab. Prerequisites: PHTH 2053, 2054, 2055.

3 credits

PHTH 2350 NEUROLOGICAL REHABILITATION
Discussion of the rehabilitation of neurological conditions. Emphasis on interventions related to the measurement and tests of the central and peripheral nervous system. Includes interventions such as, training in daily life activities, functional training and in ambulation, use of prostheses and orthoses and handling pediatric and geriatric patients with neurological conditions. Requires 30 hours of lecture and 90 hours of closed lab. Prerequisites: PHTH 2053, 2054 and 2055.

4 credits

PHTH 2921 INTERNSHIP IN PHYSICAL THERAPY I
Supervised clinical experiences aimed to integrate the technical skills and knowledge of a physical therapist assistant. It applies the basic knowledge of patient care, care of wounds, therapeutic modalities, respiratory exercises, pulmonary hygiene techniques, aerobic capacity and resistance, as established in the patient's care plan designed by the physical therapist. Practice in an agency of physical therapy services, under the supervision of a clinical instructor. Requires one hundred twenty (120) hours of practice. Prerequisites: PHTH 2053, 2054, 2055.

2 credits

PHTH 2922 INTERNSHIP IN PHYSICAL THERAPY II
Supervised clinical experiences aimed to integrate the technical skills to perform the roles expected of a physical therapist assistant. Emphasis on functional training, technical therapeutic exercises for neurological and orthopedic rehabilitation, as identified in the patient's care plan established by the physical therapist. Full-time practice in an

agency of physical therapy services, under the supervision of a clinical instructor. Requires one hundred eighty (180) hours of practice. Prerequisites: PHTH 2921, 2151, 2350.

3 credits

PHTH 2923 INTERNSHIP IN PHYSICAL THERAPY III
Full-time supervised clinical experience aimed to integrate the technical skills and knowledge required of a physical therapist assistant. Practice under the supervision of the clinical instructor, in an agency of physical therapy services. Requires two hundred forty (240) hours. Prerequisite: PHTH 2922.

4 credits

PHTH 2990 INTEGRATION SEMINAR IN PHYSICAL THERAPY
Discussion of current situations and trends in the health care services that have an impact on physical therapy and the role of the physical therapy assistant. Integration of ethical-legal principles and the results of research in the profession in the discussion of matters related to the practice of the physical therapy assistant. Prerequisites: PHTH 2151, 2350, 2921.

2 credits

Courses in Physics (PHYS)

The courses offered in physics are designed to help students in the areas of science, engineering and other disciplines understand the physical principles that have been the basis for the great technological achievements of our era. A major in physics is not offered.

PHYS 1013 GENERAL PHYSICS AND ITS APPLICATIONS
Fundamentals of the various divisions of physics. Designed for students not majoring in a science. Emphasis is placed on the application of physics to other sciences. Requires 45 hours of lecture and 45 hours of lab.

4 credits

PHYS 3001 GENERAL PHYSICS I
Logical and unified presentation of physics at the introductory level, emphasizing the basic ideas constituting its foundations: laws of motion and the conservation and interaction between particles and fields. Students are exposed to different experiences in the fields of mechanics and heat in the teaching-learning process. Emphasis on the integration and application of concepts throughout the experimentation. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: MATH 1500.

4 credits

PHYS 3002 GENERAL PHYSICS II
Continuation of the study of conservation laws, the interaction between particles and fields and the atomic description of matter. Students are exposed to different experiences in the areas of electromagnetism, waves and modern physics. Emphasis on the integration and application of concepts throughout the experimentation. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: PHYS 3001.

4 credits

PHYS 3311 PHYSICS FOR ENGINEERS I
Linear and planar motion. Newton's laws. Work and energy; impulse, momentum. Rotational motion, simple harmonic motion; equilibrium of rigid particles and bodies. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: MATH 2251.

4 credits

PHYS 3312 PHYSICS FOR ENGINEERS II
Coulomb's law, electric forces, electric field and its potential; capacitance and dielectric materials. Ohm's law, Kirchhoff's laws, magnetic fields, electromagnetic induction, alternate current circuits and electromagnetic waves. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: PHYS 3311, MATH 2252.

4 credits

Courses in Political Science (POLS)

POLS 1011 INTRODUCTION TO POLITICAL SCIENCE
Introduction to basic concepts, institutions and processes of political science.

3 credits

POLS 2040 GOVERNMENT OF THE UNITED STATES
Influence of people, processes and the political culture on the structure and functions of the federal government; the dynamic forces of growth, technological development, wars and recessions and how these have altered the development of a pluralistic society.

3 credits

POLS 2088 THE GOVERNMENT OF THE COMMONWEALTH OF PUERTO RICO
Governmental institutions and political processes in the Commonwealth of Puerto Rico; emphasis on the power structure, role of political parties, interpersonal relationships, the status question and recent trends and events.

3 credits

POLS 2100 POLITICAL ANALYSIS AND RESEARCH TECHNIQUES
Introduction to research design, investigation methods, strategies and tools to be used in field investigations in Political Science and to the formulation of theories. Emphasis on the application of the scientific method in the analysis of political data, the formulation of research problems and hypotheses and the basic techniques of statistical analysis for Social Sciences.

3 credits

POLS 3020 ORGANIZATIONS IN HISTORICAL CONTEXTS
Comparative analysis of the organization of state bureaucracies from a structural perspective. Analysis of the interaction between kinship, class and elitist enclave systems and ideologies in the formation of state structures, particularly the political control of the quasi-official power structure through classic mobilization.

3 credits

POLS 3050 ETHICS, RELIGION AND POLICY
Analysis of the impact of religion and ethics on the political development of society and the changes over time in the relations between religious practice and government.

3 credits

POLS 3080 POLITICAL ECONOMICS
Review of the main theories of political economy, its structures and the relationship between the political and economic systems in industrialized countries as well as in developing countries. Current topics are discussed.

3 credits

POLS 3100 COMPARATIVE GOVERNMENT AND POLITICS
Different political systems found in the world today; emphasis on recurrent patterns and elements of the political process.

3 credits

POLS 3150 INTRODUCTION TO INTERNATIONAL RELATIONS
Basic study of international interactions in the modem world; international alliances and conflicts; some of the global challenges faced by the world today.

3 credits

POLS 3170 INTERNATIONAL CONFLICTS
Analysis of the phenomenon of international conflict with emphasis on the principal theories regarding causes of wars, resolutions of conflicts, and strategies for maintaining peace. Review of the social, historical and biological perspectives of these theories and the result of research on peace in the last two decades.

3 credits

POLS 3180 THE POLITICAL SCIENTIST AND COMPUTERS
Use of computers in political science. Includes the creation of databases, with emphasis on Internet and available commercial programs applicable to political science.

3 credits

POLS 3190 UNITED STATES FOREIGN POLICY
United States' foreign policy from 1939 to the present; special attention to United States - Soviet relations; United States' policy toward the Third World; how the government decision-making process operates in the field.

3 credits

POLS 3200 POLITICAL SOCIOLOGY
Analysis of the historical origin of political parties, their organization and their relation with the political system. Study of methods for analyzing how the social system affects political order. Review of the sociopolitical experiences of Puerto Rico, the United States and Latin America. Study of the social bases of the political, socialization and, participatory process and the relationship between the elite and the masses. Discussion of the impact of class, race, religion and gender in political practices and behavior, in the development and organization of political parties and their relation with the political system.

3 credits

POLS 3300 HUMAN RIGHTS
Analysis of the evolution of human rights at the international level and the legal instruments established to protect them. Evaluation of the impact and importance of human rights in the traditions of western and eastern countries. Review of the importance of human rights in the contemporary world. Discussion of the ideological and cultural perspectives, sources of violations, the role of the United Nations and national governments, the human rights of women and children and the influence of nongovernmental organizations in international protection of human rights.

3 credits

POLS 3401 CLASSIC POLITICAL THOUGHT
Ideas and theories of outstanding political philosophers from classical political thought to the French Revolution.

3 credits

POLS 3402 MODERN POLITICAL THOUGHT
Ideas and theories of outstanding political philosophers from the French Revolution to the present.

3 credits

POLS 3501 POLITICAL SYSTEMS OF LATIN AMERICA
Review of the patterns, institutions and process of modem government and politics in Latin America.

3 credits

POLS 3502 CONTEMPORARY POLITICAL PROBLEMS IN LATIN AMERICA
Political problems in light of recent developments in various countries of Latin America; emphasis on most recent research on political change.

3 credits

POLS 3503 CARIBBEAN POLITICAL SYSTEMS
Analysis of governmental processes and the political practices of Caribbean countries, with special attention in the Hispanic Caribbean. Includes current problems.

3 credits

POLS 3504 MIDDLE EAST POLITICS
Analysis of the political culture, the history and the economic and social dynamics of the Middle East with greater in-depth study given to in the countries of Egypt, Israel, Iraq, Iran and Turkey.

3 credits

POLS 3700 WOMEN AND THEIR POLITICAL DEVELOPMENT
Analysis of worldwide policy from the perspective of gender. Discussion of the participation of women in politics, their participation in political institutions and the policies that affect women and their participation in the Puerto Rican and Latin American political process. Study of topics on the different interpretations of women's concerns promoted by feminist and pro-family movements, the matter of gender as opposed to the economic and social policies of the contemporary world and the problems on political equality around the world.

3 credits

POLS 3800 GOVERNMENT, ECOLOGY AND PUBLIC ENVIRONMENTAL POLICY
Integration of the study of politics, defined as the exercise of power, with ecology, defined as the impact of human activity on the environment. Analysis of the effects of the perceptions and responses of political actors on the insular and international environment.

3 credits

POLS 4033 INTER-AMERICAN RELATIONS
Study of international relations in the American hemisphere and their impact on the new social, political and economic order in the region as opposed to globalization and regionalization, particularly in the new integration processes of Latin American and the Caribbean. Discussion of comparative and multidisciplinary perspectives on critical problems of the region such as development and modernization and political change.

3 credits

POLS 4055 PUBLIC OPINION AND PROPAGANDA
Pressure groups, polls and other institutions affecting public opinion; emphasis on Western societies; international propaganda and political warfare.

3 credits

POLS 4100 CONTEMPORARY WORLD POLITICS
Leaders, systems and theory in the operation of politics today from the cold war to the present.

3 credits

POLS 4110 CONSTITUTIONAL LAW
Case study of the American Constitution; court decisions in regard to principles affecting the individual, state and federal relationships.

3 credits

POLS 4200 ANALYSIS OF POLITICAL NETWORKS
Review of theoretical and practical aspects in the application of the analysis of social networks to the study of the collective political behavior. Discussion of the role played by information networks, the exchange of resources and political support among the main corporative actors (company and commercial associations, professional groups and labor unions) in the design and implementation of public policy in the modern state. Particular attention is given to networks as a distinguishing unit of sociopolitical analysis, their structural properties, the consequences of different designs and the dynamics of network formation.

3 credits

POLS 4530 POLITICAL PSYCHOLOGY
Analysis of the principles, basic concepts, study methods and scientific research used by political psychology. Review of the formative differences of a psychosocial behavioral nature to light of the ideological factors that sustain each sociopolitical system such as: democratic systems, socialist systems, totalitarian systems and colonial systems, among others. Prerequisite: PSYC 1051.

3 credits

POLS 4540 LATIN AMERICAN POLITICAL THOUGHT
Main contributions of Latin American thinkers to political philosophy in general and to modern ideologies in particular.

3 credits

POLS 4620 GOVERNMENT AND POLITICS IN DEVELOPING AREAS (A, B, C, D, F, I)
Overview of government and politics in several developing areas (outside of Latin America). Focus will be determined and announced by the Department each time the course is offered.

3 credits

POLS 4900 POLITICAL RESEARCH
Selection and elaboration of a research theme following an integrating point of view. Oral and written presentation of a main monograph that shows the application of one or several research techniques.

3 credits

POLS 4955 INTERDEPARTMENTAL STUDIES
Selected problems in political development taught in conjunction with faculty of other programs to afford an interdisciplinary approach; nature of the problems to be announced by the cooperating programs each time the course is offered. Admission: consent of instructors.

3 credits

Courses in Polysomnography (Post Associate Degree)

POLY 3000 INTRODUCTION TO POLYSOMNOGRAPHY
Study of polysomnography. Emphasis on the study of the basic science of sleep: neurophysiology, monitoring, electrical security, diagnosis and methods of treatment. Among these, are: CPAP (Continuous Positive Airway Pressure), BiPAP (Bi level Positive Airway Pressure), oxygen therapy and surgical interventions, among others. Includes job responsibilities, the normal and abnormal patterns of sleep, and integrates physiological functions of the respiratory, nervous, and cardiovascular systems and common sleep disorders.

3 credits

POLY 3001 FOUNDATIONS OF POLYSOMNOGRAPHY I
Survey of the documentation of sleeep disorders, patient interviews and use of questionnaires. Study of the preparation and care of the patient during the application of electrodes for recording information at night, report of patient's sleep and assessment. Emphasis on the calibration and preparation of instruments, registry of parameters and introduction to the auxiliary equipment commonly used. Includes the use of CPAP for the treatment of sleep apnea. Prerequisite: POLY 3000. Corequisite POLY 3101.

3 credits

POLY 3002 FOUNDATIONS OF POLYSOMNOGRAPHY II
Differentiation of the diverse stages of sleep. Emphasis on the study of compilation methods of respiratory events, criteria of movement during sleep and when waking up. Includes the recognition of normal and abnormal sleep patterns, the effects of medicines on sleep patterns, respiratory patterns, patterns of movement when waking up, together with the criterion to recognize abnormalities in ECG and EEG. Introduction to the major categories of sleep disorders in infant and pediatric patients. It provides a detailed vision of the specific aspects of Polysomnography and of the special needs required for this population. Prerequisite: POLY 3001. Corequisite POLY 3102.

3 credits

POLY 3101 CLINICAL POLYSOMNOGRAPHY I
Directed practice in a clinical scenario in a sleep laboratory or center. Emphasis on the valuation of the periodic cessation of respiratory activity based on positioning and monitoring of the following: electroencephalography, electroculography, electrocardiography, electromyography, pulse oximetry, inductive plethysmnography (changes in

volume) and thermoregulation of the air flow. Recognition of anomalies in the EEG and ECG diagrams and how to react and to relate them to different sleep disorders. Prerequisite: POLY 3000. Corequisite POLY 3001.

2 credits

POLY 3102 CLINICAL POLYSOMNOGRAPHY II
Directed practice in a clinical scenario in a sleep laboratory or center. Students assist in the preparation and discontinuation of monitoring in sleep studies of pediatric and adult patients. Emphasis on the documentation of the findings in sleep patterns related to the cessation of breathing. Use of CPAP and BIPAP equipment for the treatment of apnea, and the use of oxygen when indicated. Prerequisites: POLY 3001, 3101. Corequisite POLY 3002.

2 credits

Courses in Popular Music (MUSI)

MUSI 0501 PREPARATORY FLUTE I
Study and development of basic skills for performance on the instrument: the correct manner to hold the flute, correct posture for playing the instrument, diaphragmatic breathing, sound production and elementary music reading. Prerequisite: placement by the entrance examination or by validation.

3 credits

MUSI 0502 PREPARATORY FLUTE II
Mastery of the basic skills for performing on the instrument in preparation for entrance to the first year of studies with the principal instrument. Prerequisite: MUSI 0501 or placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0511 PREPARATORY PIANO 1
Study and development of basic skills for piano performance: performance of major scales of 2 octaves with both hands, both separately and simultaneously: correct performance of arpeggios, music reading at first sight and basic repertoire of the instrument. Prerequisite: placement by the entrance examination or by validation.

3 credits

MUSI 0512 PREPARATORY PIANO II
Mastery of the basic skills for performing on the piano in preparation for entrance to the first year of studies with the principal instrument. Prerequisite: MUSI 0511 or placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0521 PREPARATORY PUERTO RICAN CUATRO I
Introduction to the basic technique for the instrument: development of good posture and the correct manner to hold the plectrum. Elementary music reading and development of a simple repertoire for the cuatro. Prerequisite: placement by entrance examination or by validation.

3 credits

MUSI 0522 PREPARATORY PUERTO RICAN CUATRO II
Continuation of the previous course with a more in depth study of basic techniques and the repertoire for the instrument. Prerequisite: MUSI 0521 or placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0531 PREPARATORY MUSIC THEORY AND SIGHT SINGING I
Preparatory course designed for students with talent but with little experience in music fundamentals. Emphasis on popular written music, auditory training and sight reading with the purpose of developing reading at first sight. Prerequisite: placement by entrance examination or by validation.

3 credits

MUSI 0532 PREPARATORY MUSIC THEORY AND SIGHT SINGING II
Mastery of the basic skills of Music Theory and sight reading in the field of popular music in preparation for entrance to the first year of studies in the field of Music Theory and sight reading. Prerequisite: MUSI 0531 or placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0541 PREPARATORY SAXOPHONE I
Study and development of basic skills for performance on the instrument: the correct manner to hold the saxophone, correct posture for playing the instrument, correct breathing, sound production and elementary music reading. Prerequisite: placement by the entrance examination or by validation.

3 credits

MUSI 0542 PREPARATORY SAXOPHONE II
Mastery of the basic skills for performing on the instrument in preparation for entrance to the first year of studies with the principal instrument. Prerequisite: MUSI 0541 or placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0551 PREPARATORY TRUMPET I
Study and development of basic skills for performance on the instrument: the correct manner to hold the trumpet, correct posture for playing the instrument, diaphragmatic breathing, mouthpiece, production of sound and elementary music reading. Prerequisite: placement by the entrance examination or by validation.

3 credits

MUSI 0552 PREPARATORY TRUMPET II
Mastery of the basic skills for performing on the instrument in preparation for entrance to the first year of studies with the principal instrument. Prerequisite: MUSI 0551 or placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0571 PREPARATORY TROMBONE I
Study and development of basic skills for performance on the instrument: the correct manner to hold the trombone, correct posture for playing the instrument, diaphragmatic breathing, mouthpiece, production of sound and elementary music reading. Prerequisite: placement by the entrance examination or by validation.

3 credits

MUSI 0572 PREPARATORY TROMBONE II
Mastery of the basic skills for performing on the instrument in preparation for entrance to the first year of studies with the principal instrument. Prerequisite: MUSI 0571 or placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0581 PREPARATORY BASS I
Study and development of basic skills for performance on the bass: basic posture, independence of hands, tuning, sound production and music reading. Prerequisite: placement by the entrance examination or by validation.

3 credits

MUSI 0582 PREPARATORY BASS II
Mastery of the basic skills for performing on the bass in preparation for entrance to the first year of studies with the principal instrument. Prerequisite: MUSI 0581 or placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0591 PREPARATORY GUITAR I
Study and development of basic skills for performance on the contemporary guitar (acoustic and electric): basic posture, relationship of the hands, production of sounds on the diapason (the position), tuning of strings and basic music reading. Prerequisite: placement by the entrance examination or by validation.

3 credits

MUSI 0592 PREPARATORY GUITAR II
Mastery of the basic skills for performing on the guitar (acoustic and electric) in preparation for entrance to the first year of studies with the principal instrument. Prerequisite: MUSI 0591 or placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0601 PREPARATORY DRUMS I
Study and development of basic skills for performance on the instrument: correct form of sitting and of holding the drumsticks, independence of the hands and elementary music reading. Prerequisite: placement by the entrance examination or by validation.

3 credits

MUSI 0602 PREPARATORY DRUMS II
Mastery of the basic skills for performing on the drums in preparation for entrance to the first year of studies with the musical instrument. Prerequisite: MUSI 0601 or placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0611 PREPARATORY PERCUSSION I
Study and conceptual and practical development of basic skills for performance on the Latin percussion: basic posture, flexibility and coordination for both hands and elementary music reading of rhythmic patterns. Prerequisite: placement by the entrance examination or by validation.

3 credits

MUSI 0612 PREPARATORY PERCUSSION II
Mastery of the basic skills for performing on the Latin percussion in preparation for entrance to the first year of studies with the principal musical instrument. Prerequisite: MUSI 0611 or placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0631 PREPARATORY VIOLIN I
Study and development of the basic performance skills. This course is for students who have little or no previous experience with the instrument. Prerequisite: MUSI 0531 or placement by audition.

3 credits

MUSI 0632 PREPARATORY VIOLIN II
Continuation of the study and development of the required basic skills for entrance to the regular current of the first year of the Program. Prerequisite: MUSI 0631 or placement by audition.

3 credits

MUSI 0641 PREPARATORY VOICE I
Designed for well-trained students who, by audition, have shown that they have a good voice and are trainable because of voice quality, rhythm and intonation. Study of basic skills for performance with the voice: care and correct use, posture, relaxation, breath control and sound production, diction and the interpretation and memorization of simple songs. Prerequisite: placement by entrance examination or by validation.

3 credits

MUSI 0642 PREPARATORY VOICE II
Mastery of the basic skills in vocal performance in preparation for entrance to the first year of studies with the principal instrument. Prerequisite: placement in accordance with the entrance examination or by validation.

3 credits

MUSI 0651 PREPARATORY VIOLA I
Study and development of the basic performance skills. This course is for students who have little or no previous experience in the instrument. Prerequisite: MUSI 0531 or placement by audition.

3 credits

MUSI 0652 PREPARATORY VIOLA II
Continuation of the study and development of the required basic skills for entrance to the regular current of the first year of the Program. Prerequisite: MUSI 0651 or placement by audition.

3 credits

MUSI 0671 PREPARATORY CELLO I
Study and development of the basic performance skills. This course is for students who have little or no previous experience in the instrument. Prerequisite: MUSI 0531 or placement by audition.

3 credits

MUSI 0672 PREPARATORY CELLO II
Continuation of the study and development of the required basic skills for entrance to the regular current of the first year of the Program. Prerequisite: MUSI 0671 or placement by audition.

3 credits

MUSI 1122 COMPARATIVE HISTORY OF MUSIC I
Comparative history of the genesis and the development of different types of music and the musical practices in the societies of Europe and the Americas from the Middle Ages to the end of 18th century. Reading and writing, the analysis and musical audition of the musicians, the genres, the instruments and the social context of types of music that make up the musical tradition of the society, in general. Study of the invention of categories of classification, such as popular and classic, as well as the historical tradition in the context of the colonial relations between the Americas and Europe.

3 credits

MUSI 1123 COMPARATIVE HISTORY OF MUSIC II
Comparative history of the types of music and the musical practices created and developed in Europe and the Americas since the beginning of the 19th century until the present. Reading and writing, the analysis and musical audition of the musicians, the genres, the instruments and the social context of types of music that make up the musical tradition of the society, in general. Study of the invention of categories of classification, such as popular and classic, as well as the historical tradition in the context of the colonial relations between the Americas and Europe.

3 credits

MUSI 1124 COMPARATIVE HISTORY OF MUSIC III
Discussion of the history of the music of Puerto Rico from the pre-Columbian time to the 21st century. Reading and writing, analysis and musical audition of the musicians, the genre , the instruments and the social context of the types of music that make up the musical tradition in the Puerto Rican society, in general. The genesis and the development of debates on music and identity, music and authenticity and the historiography of music on the Island will be studied.

3 credits

MUSI 1126 CHRISTIAN MUSIC HISTORY
Analysis of the historical, musical and theological aspects and the origin and development of Christian music as well as the practice and its trajectory within the liturgical framework. Prerequisite: MUSI 0532.

2 credits

MUSI 1323 INSTRUMENTAL ENSEMBLE I
Practices in supervise rehearsals under the guidance of the group director, for a concert repertoire selected according to the levels and to nature of the group. Presentation of the repertoire in a public concert at the end of the academic term.

2 credits

MUSI 1324 INSTRUMENTAL ENSEMBLE II
Practices in supervise rehearsals under the guidance of the group director, for a concert repertoire selected according to the levels and to nature of the group. Presentation of the repertoire in a public concert at the end of the academic term. Prerequisite: MUSI 1323 or its equivalent.

2 credits

MUSI 1333 CHORAL ENSEMBLE I
Practices in supervise rehearsals under the guidance of the group director, for a recital (choral) repertoire selected according to the levels and to nature of the group. Presentation of the recital repertoire in a public concert at the end of the academic term. The evaluation takes into account attendance and the preparation for the rehearsals, as well as the participation in the concerts.

2 credits

MUSI 1334 CHORAL ENSEMBLE II
Practices in supervise rehearsals under the guidance of the group director, for a recital (choral) repertoire selected according to the levels and to nature of the group. Presentation of the recital repertoire in a public concert at the end of the academic term. The evaluation takes into account attendance and the preparation for the rehearsals, as well as the participation in the concerts. Prerequisite: MUSI 1333 or its equivalent.

2 credits

MUSI 1501 FLUTE I
Course to prepare students to develop effectively in the popular music field. Study of techniques, sound projection, memorization and interpretation of musical pieces of medium difficulty, memorization and development of reading at first sight. Prerequisite: have passed a practice entrance examination or preparatory courses in the flute.

3 credits

MUSI 1502 FLUTE II
Continuation of the previous course with a more in-depth study of the techniques, sound production and repertoire of the instrument. Introduction to vibrato and double tonguing, memorization and interpretation of musical pieces of advanced difficulty and to reading at first sight. Prerequisite: MUSI 1501.

3 credits

MUSI 1511 PIANO I
Course to prepare students to develop effectively in the popular music field. Study of piano techniques, memorization and interpretation of musical pieces of medium difficulty and of reading at first sight. Prerequisite: MUSI 0512 or have passed an entrance examination at this level (by audition before a jury of professors) or by validation.

3 credits

MUSI 1512 PIANO II
Continuation of the previous course with a more in-depth study of the techniques, the repertoire of the instrument and of the development of reading at first sight. Prerequisite: MUSI 1511.

3 credits

MUSI 1521 PUERTO RICAN CUATRO I
More advanced study of techniques for the instrument, mastery of the plectrum non-adjacent strings and in the repertoire of the instrument. Prerequisite: MUSI 0522 have passed an entrance examination at this level or by validation.

3 credits

MUSI 1522 PUERTO RICAN CUATRO II
More advanced study of techniques for the instrument and an extension of its repertoire. Prerequisite: MUSI 1521 or have passed an entrance examination at this level or by validation.

3 credits

MUSI 1531 THEORY AND SIGHT SINGING I
Detailed study of music theory and sight singing applied to popular music. Emphasis on auditory training of medium difficulty (up to two voices), and music reading at first sight including an introduction to the transport technique. Prerequisite: have passed a written and practical entrance placement examination or preparatory courses in the field of Music Theory and Sight Singing.

3 credits

MUSI 1532 THEORY AND SIGHT SINGING II
Detailed study of music theory and sight singing applied to popular music. Emphasis on auditory training (up to four voices), and music reading at first sight including the perfecting of the transport technique. Prerequisite: MUSI 1531 or equivalent.

3 credits

MUSI 1541 SAXOPHONE I
Course to prepare students for effective development in their principal instrument in the popular music field. Study of techniques for the instrument, sound projection, memorization and interpretation of pieces of medium difficulty and the development of reading at first sight. Prerequisites: MUSI 0542 or have passed the entrance examination for this level by audition or by validation.

3 credits

MUSI 1542 SAXOPHONE II
Continuation of the preparation for students' effective development in the popular music field. A broader and more in-depth study of techniques for the instrument and sound production and projection. Introduction to vibrato, memorization and interpretation of musical pieces of medium and advanced difficulty and to reading at first sight. Prerequisites: MUSI 1541 or have passed the entrance examination for this level by audition or by validation.

3 credits

MUSI 1551 TRUMPET I
Course to prepare for an effective development in the instrument in the popular music field. Study of techniques for the instrument, sound projection, memorization and interpretation of pieces of medium difficulty and the development of reading at first sight. Prerequisite: MUSI 0552 or have passed the entrance examination by audition or by validation.

3 credits

MUSI 1552 TRUMPET II
Continuation of the preparation for students' effective development with their principal instrument in the popular music field. A broader study of techniques for the instrument, sound production and projection, introduction to vibrato, extension of the register, memorization and interpretation of musical pieces of medium and advanced difficulty and reading at first sight. Prerequisite: MUSI 1551.

3 credits

MUSI 1563 GROUP PIANO I
Introduction to the keyboard as a work instrument. Basic scales and arpeggios. Some knowledge of keyboard harmony.

2 credits

MUSI 1564 GROUP PIANO II
Continuation of the introduction to the keyboard. Advanced study of the scales, the arpeggios and the chords. Prerequisite: MUSI 1563.

2 credits

MUSI 1571 TROMBONE I
Course designed for achieving the effective development of students in their principal instrument in the popular music field. Study of techniques for the instrument, sound projection, memorization and interpretation of pieces of the medium difficulty and the development of reading at first sight. Prerequisite: MUSI 0572 or have passed the entrance examination for this level by audition or by validation.

3 credits

MUSI 1572 TROMBONE II
Continuation of preparation for the effective development of students in their principal instrument in the popular music field. A broader study of techniques for the instrument, sound production and projection, introduction to vibrato, extension of the register, memorization and interpretation of musical pieces of medium and advanced difficulty and reading at first sight. Prerequisites: MUSI 1571.

3 credits

MUSI 1581 BASS I
A more profound study of techniques for the instrument, musical calligraphy and the diapason. Prerequisite: MUSI 0582 or have passed an entrance examination for this level or by validation.

3 credits

MUSI 1582 BASS II
Study of more advanced styles of popular music such as salsa, funk, jazz, samba and fusion and the role of bass in these styles. Perfecting the techniques for the instrument. Prerequisite: MUSI 1581 or have passed an entrance examination at this level or by validation.

3 credits

MUSI 1591 GUITAR I
Study of techniques for the instrument, of diapason and the use of the pick; introduction to reading at first sight and to the technique of reading charts of popular music for the principal instrument. Prerequisite: MUSI 0592 or have passed an entrance examination at this level or by validation.

3 credits

MUSI 1592 GUITAR II
A more profound study of techniques for the instrument, reading at first sight and the extension of the musical repertoire. Prerequisite: MUSI 1591 or have passed an entrance examination at this level or by validation.

3 credits

MUSI 1601 DRUMS I
This course is divided into three phases: reading at first sight, techniques for the instrument and study of simple styles of popular music. Workshops will be formed for group practice. Prerequisite: MUSI 0602 or have passed an entrance examination or by validation.

3 credits

MUSI 1602 DRUMS II
Study of the most advanced techniques for the instruments and styles such as salsa, merengue, funk, jazz and samba. Emphasis on reading more advanced rhythms. Workshops will be created for group practice. Prerequisite: MUSI 1601 or have passed an entrance examination or by validation.

3 credits

MUSI 1611 PREPARATORY PERCUSSION I
This course is divided into three phases: reading at first sight, techniques for the instrument and study of simple styles of popular music. Workshops will be formed for group practice. Prerequisite: MUSI 0612 or have passed an entrance examination or by validation.

3 credits

MUSI 1612 PREPARATORY PERCUSSION II
A more advanced study of techniques for the instrument and styles such as salsa, merengue, funk, jazz and samba. Emphasis on reading more advanced rhythms. Workshops will be created for group practice. Prerequisite: MUSI 1611 or have passed an entrance examination or by validation.

3 credits

MUSI 1631 VIOLIN I
Introduction to basic skills of the techniques of the instrument. Study of the interpretation and musical reading for its performance in pop music and jazz. Prerequisite: MUSI 0632 or placement by audition.

3 credits

MUSI 1632 VIOLIN II
Continuation in the use of the techniques of the instrument. Study of the interpretation and musical reading for its execution in pop music and jazz. Prerequisite: MUSI 1631 or placement by audition.

3 credits

MUSI 1641 VOICE I
Detailed study of posture, breath control, sound projection, diction and repertoire. Prerequisite MUSI 0642 or have passed an entrance examination or by validation.

3 credits

MUSI 1642 VOICE II
Continuation of a more in-depth development of knowledge already acquired regarding posture, breath control, sound projection, diction by means of an extensive literature. Prerequisite MUSI 1641 or have passed an entrance examination or by validation.

3 credits

MUSI 1651 VIOLA I
Introduction to the basic technique skills of the instrument. Study of interpretation and musical reading for its performance in pop music and jazz. Prerequisite: MUSI 0652 or placement by audition.

3 credits

MUSI 1652 VIOLA II
Continuation in the use of the techniques of the instrument. Study of interpretation and musical reading for its performance in pop music and jazz. Prerequisite: MUSI 1651 or placement by audition.

3 credits

MUSI 1661 GROUP GUITAR I
Introduction to the study of the guitar technique. Study of the basic skills in the performance applied to the instrument, correct technique of both hands, production of a purified sound, study of majors and minor scales, interpretation of studies to develop the technique and study of simple pieces.

2 credits

MUSI 1662 GROUP GUITAR II
Designed for students who continue learning the technique of the guitar. Study of the basic skills in the performance applied to the instrument, correct technique of both hands, production of a purified sound, study of majors and minor scales, interpretation of studies to develop the technique and study of simple pieces. Prerequisite: MUSI 1661.

2 credits

MUSI 1671 CELLO I
Introduction to the basic technique skills of the instrument. Study of interpretation and musical reading for its performance in pop music and jazz. Prerequisite: MUSI 0672 or placement by audition.

3 credits

MUSI 1672 CELLO II
Continuation in the use of the techniques of the instrument. Study of interpretation and musical reading for its performance in pop music and jazz. Prerequisite: MUSI 1671 or placement by audition.

3 credits

MUSI 2000 DIGITAL MUSICAL NOTATION
Systematic study of one of the most powerful and popular computer notation programs. For example *Finale* or *Sibelius*.

3 credits

MUSI 2020 LITURGICAL FUNCTION OF MUSIC
Comprehensive survey of sacred music. Analysis of musical development in the church and the most representative traditions, as well as their biblical, theological and historical bases. Appraisal of the influences of commercial religious music and its sociological elements and the practical aspects of the use of music in liturgy. Prerequisite: MUSI 0532.

2 credits

MUSI 2030 CHORAL DIRECTING AND MANAGEMENT
Study of choral directing techniques, rehearsal methodology, selection of the repertoire and the organization of a choir or choral programs. Prerequisite: MUSI 0532.

3 credits

MUSI 2040 INSTRUMENTAL DIRECTING AND MANAGEMENT
Study of directing techniques and rehearsal methodology for different instrumental configurations, such as: orchestra, band, minstrel, bells choir or ensemble. Recognition of their register and positions in the different instruments. Prerequisite: MUSI 0532.

3 credits

MUSI 2050 SACRED MUSIC ENSEMBLE
Interpretation of a repertoire of sacred music that includes traditional and contemporary expressions. Prerequisite: MUSI 0532.

2 credits

MUSI 2060 ANTHROPOLOGY AND HISTORY OF MUSIC
Introduction to the study of the genesis and development of historical and anthropological studies of music. Comprehensive and comparative review of the investigative and interpretative traditions in anthropology and musical history in Europe and the Americas from the nineteenth century to the present. Prerequisite: MUSI 1123.

3 credits

MUSI 2070 MUSICAL RESEARCH THEORIES AND METHODS
Identification of methods and theories of research in anthropology and musical history. Basic skills development in academic research: familiarization with library operation and library databanks, as well as application programs of bibliographical and documentary organization. Working with quotation styles, the creation of bibliographies and academic writing formats used in the fields of anthropology and musical history. Prerequisite: MUSI 2060.

3 credits

MUSI 2080 PARADIGMS IN ANTHROPOLOGY AND MUSIC HISTORY
Reading of exemplary works in the anthropology and music history disciplines. Comparative analysis of the researchers in Europe and the Americas and of their writings, from the nineteenth century to the present. Prerequisite: MUSI 2060.

3 credits

MUSI 2326 INSTRUMENTAL ENSEMBLE III
Directed practices under the guidance of the group director, a concert repertoire selected according to the levels and the nature of the groups. Presentation of the repertoire in a public concert at the end of the academic term. Prerequisite: MUSI 1334 or its equivalent.

2 credits

MUSI 2327 INSTRUMENTAL ENSEMBLE IV
Directed practices, under the guidance of the group director, a concert repertoire selected according to the levels and the nature of the groups. Presentation of the repertoire in a public concert at the end of the academic term. Prerequisite: MUSI 2326 or its equivalent.

2 credits

MUSI 2335 CHORAL ENSEMBLE III
Directed practices, under the trusteeship of the group director, a concert repertoire selected according to the levels and the nature of the groups. Presentation of the repertoire in a public concert at the end of the academic term. Prerequisite: MUSI 1333 or its equivalent.

2 credits

MUSI 2336 CHORAL ENSEMBLE IV
Directed practices, under the guidance of the group director, a concert repertoire selected according to the levels and the nature of the groups. Presentation of the repertoire in a public concert at the end of the academic term. Prerequisite: MUSI 2335 or its equivalent.

2 credits

MUSI 2503 FLUTE III
Course designed to prepare students to master techniques of their principal instrument and reading at first sight together with an introduction to improvisation, Advanced study of instrument techniques, perfecting reading at first sight, interpretation of an advanced repertoire and improvisation techniques. Prerequisite: MUSI 1502.

3 credits

MUSI 2504 FLUTE IV
Advanced study of instrument techniques with emphasis on improvisation and the repertoire. Prerequisite: MUSI 2503.

3 credits

MUSI 2513 PIANO III
Continuation of the previous course where the techniques, interpretation and repertoire of the principal instrument are developed to a higher level of difficulty. Prerequisite: MUSI 1512.

3 credits

MUSI 2514 PIANO IV
Advanced study of techniques and interpretation of the student's principal instrument. Prerequisite: MUSI 2513.

3 credits

MUSI 2523 PUERTO RICAN CUATRO III
Intermediate and advanced level study of techniques for the instrument with emphasis on improvisation and the repertoire. Prerequisite: MUSI 1522.

3 credits

MUSI 2524 PUERTO RICAN CUATRO IV
Advanced study of techniques for the instrument with emphasis on advanced improvisation and extension of the repertoire. Prerequisite: MUSI 2523.

3 credits

MUSI 2531 IMPROVISATION I
Introductory study to the art of musical improvisation with emphasis on the styles of Jazz and Afro-Caribbean music. The basic techniques of improvisation on simple pitch or modal progressions will be emphasized. Analysis and transcription of solos.

3 credits

MUSI 2532 IMPROVISATION II
Continuation of the study begun in the course Improvisation I. Emphasis on the review and internalization of the concepts presented in the previous course and the presentation of new techniques and resources that expand the previous ones. Prerequisite: MUSI 2531.

3 credits

MUSI 2533 IMPROVISATION III
Study of the advanced techniques of improvisation accessible to all harmonic and melodic instruments. This extends up to atonal improvisation (free), arbitrary and other sources of this art derived from classic or popular contemporary music. Prerequisite: MUSI 2532.

3 credits

MUSI 2543 SAXOPHONE III
Course designed to prepare students for mastery of techniques for the instrument and of reading at first sight together with an introduction to improvisation. Advanced study of the technique for the instrument, the perfecting of reading at first sight, interpretation of an advanced repertoire and of techniques for improvisation. Prerequisite: MUSI 1542.

3 credits

MUSI 2544 SAXOPHONE IV
Advanced study of the technique of the instrument with emphasis on improvisation and the repertoire. Prerequisite: MUSI 2543

3 credits

MUSI 2553 TRUMPET III
Course designed to prepare students to master techniques of the instrument and reading at first sight together with an introduction to improvisation, Advanced study of instrument techniques, perfecting reading at first sight, interpretation of an advanced repertoire and improvisation techniques. Prerequisite: MUSI 1552.

3 credits

MUSI 2554 TRUMPET IV
Advanced study of techniques for the instrument, sound production, reading at first sight, expansion of the register and the repertoire and improvisation. Prerequisite: MUSI 2553.

3 credits

MUSI 2573 TROMBONE III
Course designed to prepare students to master techniques for the instrument and reading at first sight, interpretation of advanced repertoire and improvisation techniques. Prerequisite: MUSI 1572.

3 credits

MUSI 2574 TROMBONE IV
Advanced study of techniques of the instrument, sound production and projection, reading at first sight, expansion of the register and the repertoire and improvisation. Prerequisite: MUSI 2573.

3 credits

MUSI 2583 BASS III
Introduction to improvisation and reading charts with melodies and basses written in different popular music styles and the transcription of solos of established musical literature. Prerequisite: MUSI 1582.

3 credits

MUSI 2584 BASS IV
A more in-depth study of techniques for the instrument, reading at first sight and advanced improvisation. Prerequisite: MUSI 2583.

3 credits

MUSI 2593 GUITAR III
Intermediate to advanced study of techniques for the instrument with emphasis on improvisation and the repertoire of the instrument, especially in jazz. Prerequisite: MUSI 1592.

3 credits

MUSI 2594 GUITAR IV
Advanced study of techniques for the instrument with emphasis on advanced improvisation and expansion of the characteristic repertoire. Prerequisite: MUSI 2593.

3 credits

MUSI 2603 DRUMS III
Emphasis on reading popular music styles that use 3/4, 5/4 and 7/4 time signatures. Introduction to improvisation. Prerequisite: MUSI 1602.

3 credits

MUSI 2604 DRUMS IV
The study of jazz, advanced improvisation and reading at first sight with changes in time signatures. Prerequisite: MUSI 2603.

3 credits

MUSI 2613 PERCUSSION III
Emphasis on reading musical styles that use 3/4, 5/4, and 7/4 time signatures. Introduction to improvisation. Prerequisite: MUSI 1612.

3 credits

MUSI 2614 PERCUSSION IV
Study of jazz, advanced improvisation and reading at first sight with changes in beat. Prerequisite: MUSI 2613.

3 credits

MUSI 2624 HARMONY II
Study of the altered and extended chords. Emphasis on auditory discrimination, harmonic dictation, the analysis of progressions and the use of the chords in the accompaniment of popular melodies. Prerequisites: MUSI 2623.

3 credits

MUSI 2625 HARMONY III
Detailed study of the contemporary techniques of harmonization. Emphasis on non-functional harmony, non-tertiary harmony, modal harmony and the poly-chords. Analysis of works that exhibit the mentioned techniques. Practice of exercises in the different techniques learned. Prerequisite: MUSI 2624.

3 credits

MUSI 2633 VIOLIN III
Broader study of the technical skills, interpretation, musical reading and improvisation for the performance of the instrument in pop music and jazz. Prerequisite: MUSI 1632 or placement by audition.

3 credits

MUSI 2634 VIOLIN IV
Continuation of the study of technique and musical reading with emphasis on improvisation and the repertoire for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2633.

3 credits

MUSI 2643 VOICE III
Development of agility, flexibility, extension of register, the importance of the dynamics and intonations through extensive literature. Emphasis on the interpretation and memorization of popular songs for the student's register of voice with an introduction to improvisation. Prerequisite: MUSI 1642 and have passed the entrance examination or by validation.

3 credits

MUSI 2644 VOICE III
Emphasis on more advanced vocal exercises and on style interpretations, state of mind, color and shades. Prerequisite: MUSI 2643.

3 credits

MUSI 2653 VIOLA III
Broader study of the technical skills, interpretation, musical reading and improvisation for the performance of the instrument in pop music and jazz. Prerequisite: MUSI 1652 or placement by audition.

3 credits

MUSI 2654 VIOLA IV
Continuation of the study of the technique and musical reading with emphasis on improvisation and the repertoire for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2653.

3 credits

MUSI 2673 CELLO III
Broader study of the technical skills, interpretation, musical reading and improvisation, for the performance of the instrument in pop music and jazz. Prerequisite: MUSI 1672 or placement by audition.

3 credits

MUSI 2674 CELLO IV
Continuation of the study of the technique and musical reading with emphasis on improvisation and the repertoire for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2673.

3 credits

MUSI 2703 GRADUATION CONCERT
Preparation of a 25 minutes recital to be presented in its totality before a jury under the guidance of the candidate's professor. Selection of the repertoire, the preparation of the arrangements and the coordination of the rehearsals. These pieces change each academic term. Includes filming the student's performance in audio and video. The course is passed with a minimum grade of B. Prerequisite: Be a candidate for graduation.

3 credits

MUSI 3020 MUSIC AND RESEARCH: ARCHIVES
Theoretical analysis of research methodologies in historical archives and private collections. Application of highly developed cybernetic search methodologies and the work in virtual archives. Prerequisite: MUSI 2080.

3 credits

MUSI 3030 MUSIC AND RESEARCH: FIELDWORK
Theoretical analysis of the methodologies of field research. Application of the practices of ethnographic interviews, observation and participation in public activities of ethnographic value. Prerequisite: MUSI 2080.

3 credits

MUSI 3040 MUSIC AND RESEARCH: DESIGN AND WRITING
Design and carrying out of a musical research. Practical application of the methods and procedures of academic research. Writing of a monographic work that meets the requirements with regard to the formats and current styles in anthropology and music history writings. Prerequisites: MUSI 3020, 3030.

3 credits

MUSI 3505 FLUTE V
Advanced study of the instrument with emphasis on contemporary techniques of improvisation in Jazz as well as in Latin American genres. Preparation of a standard repertoire of popular music. Evaluation by a jury. Prerequisite: MUSI 2504.

3 credits

MUSI 3506 FLUTE VI
Advanced study of the instrument with emphasis on a review of all the concepts learned until converting them into professional practice. Preparation of a repertoire for the graduation recital. Evaluation by a jury. Prerequisite: MUSI 3505.

3 credits

MUSI 3515 PIANO V
Continuation of the study and performance of all the major and minor scales in 2nd, 3rd, 4th and 5th intervals. Emphasis on improvisation and accompaniment. Application of the techniques of re harmonization and use of transcription as an auditory training tool. Evaluation by a jury. Prerequisite: MUSI 2514.

3 credits

MUSI 3516 PIANO VI
Continuation of the study and performance of all the major and minor scales in 6th and 7th intervals. Improvisation and accompaniment will be emphasized. The techniques of re harmonization will be applied and transcription as an auditory training tool will be used. Pieces of the classic repertoire and Puerto Rican music in format of *Solo* or *Rhythm Section* are included. Evaluation by a jury. Prerequisite: MUSI 3515.

3 credits

MUSI 3525 PUERTO RICAN CUATRO V
Study and development of reading by intervals in all the registry of the instrument. Integration of the classic repertoire for solo or duet. Emphasis on the reading of compound rhythms and the study of syncopation. Evaluation by a jury. Prerequisite: MUSI 2524.

3 credits

MUSI 3526 PUERTO RICAN CUATRO VI
Profound study and the development of an advanced repertoire with emphasis on native music: Danzas, Mazurcas, Valses, Paso Dobles and others. Also, a repertoire of Jazz and of popular international the music is included. This course serves as preparation for the Graduation Recital course. Evaluation by a jury. Prerequisite: MUSI 3525.

3 credits

MUSI 3545 SAXOFÓN V
Advanced study of the instrumental technique and improvisation skills. The classic repertoire of the instrument is also included to foment integral development, from the historical point of view, as well as the stylistic. Evaluation by a jury. Prerequisite: MUSI 2544.

3 credits

MUSI 3546 SAXOFÓN VI
Advanced study of the instrumental technique and the vanguard improvisation trends. Also, the European classic repertoire and the Puerto Rican one are included to foment the holistic musical development. Evaluation by a jury. Prerequisite: MUSI 3545.

3 credits

MUSI 3555 TRUMPET V
Advanced study of improvisation using standards of Jazz in combo format. Studies for the trumpet will be included, only of the classic and popular repertoire to develop the high registry. Evaluation by a jury. Prerequisite: MUSI 2554.

3 credits

MUSI 3556 TRUMPET VI
Advanced study of the technique of the instrument with emphasis on the expansion of the registry and the development of the art of improvisation in different contexts especially in Jazz and afro-Caribbean music. The course is structured to be the introduction to the Graduation Recital course. Evaluation by a jury. Prerequisite: MUSI 3555.

3 credits

MUSI 3575 TROMBONE V
Emphasis on the presentation of the graduation concert. Study of the advanced techniques of the instrument: production and projection of sound, reading at first sight, the extension of the registry, the repertoire and improvisation. Evaluation by a jury. Prerequisite: MUSI 2574**.**

3 credits

MUSI 3576 TROMBONE VI
Emphasis on the presentation of the graduation concert. Study of the advanced techniques of the instrument (besides including those of Trombone V): Jazz scales and patterns, the variants of the modes (increased lidio,lidio b7, locrio #2, super locrio and other increased and diminished scales. Evaluation by a jury. Prerequisite: MUSI 3575.

3 credits

MUSI 3585 BASS V
Work with a repertoire of highly difficult popular songs in different styles with emphasis on melodic improvisation. Application of all the harmonic material studied in courses MUSI 0581, 0582, 1581, 1582, 2583, 2584 as well as all the performance techniques of the instrument. Evaluation by a jury. Prerequisite: MUSI 2584.

3 credits

MUSI 3586 BASS VI
Continuation of the work with the repertoire of highly difficult popular songs in different styles. Emphasis on melodic improvisation and the performance of all the different techniques of the instrument. Evaluation by a jury. Prerequisite: MUSI 3585.

3 credits

MUSI 3595 GUITAR V
Continuation in technical studies and the application to the concepts of improvisation on the guitar that will be applied to musical styles within the Jazz and the popular music genres. Application of the studies and exercises to the available repertoire. In addition, development of the accompaniment skills, in the different musical styles, as well as in their application of improvisation techniques. Evaluation by a jury. Prerequisite: MUSI 2594.

3 credits

MUSI 3596 GUITAR VI
Continuation of technical studies and the application to the concepts of improvisation on the guitar applied to the musical styles within the Jazz and the popular music genres. Application of studies, exercises available to the repertoire and development in the accompaniment skills to different musical styles and application of the improvisation techniques. Identification of themes as an introduction to the student's graduation concert. Evaluation by a jury. Prerequisite: MUSI 3595.

3 credits

MUSI 3605 DRUMS V
Continuation course for development in the performance on the drum with emphasis on the technique, musical reading, accompaniment skills and improvisation in blending styles. Evaluation by a jury. Prerequisite: MUSI 2604.

3 credits

MUSI 3606 DRUMS VI
Continuation course for development in the performance on the drum with emphasis on the technique, musical reading, the accompaniment skills and improvisation in classified styles like *Be-pop, ECM and Avantgarde.* Work will also be done on open solos. Evaluation by a jury. Prerequisite: MUSI 3605.

3 credits

MUSI 3615 PERCUSSION V
Continuation course for development in the performance of percussion instruments with emphasis on the technique, musical reading, the accompaniment skills and improvisation in blending styles. Greater importance to keyboard instruments (mallets). Evaluation by a jury. Prerequisite: MUSI 2614.

3 credits

MUSI 3616 PERCUSSION VI
Continuation course for development in the performance of percussion instruments with emphasis on the technique, musical reading, the accompaniment skills and improvisation in classified styles like *Be-pop, ECM and Avantgarde*. Work will also be done on open solos. Emphasis on keyboard instruments (mallets) and on the Graduation Recital repertoire. Evaluation by a jury. Prerequisite: MUSI 3615.

3 credits

MUSI 3635 VIOLIN V
Advanced study of the instrument with emphasis on advanced techniques in improvisation for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2634.

3 credits

MUSI 3636 VIOLIN VI
Integration study of the concepts and skills learned, directed to professional practice. This course serves as preparation for the course of Graduation Recital. Prerequisite: MUSI 3635.

3 credits

MUSI 3645 VOICE V
Emphasis on the development of the acquired knowledge of vocal technique, giving importance to establishing the student's own concept of his voice and to the interpretation of different styles. Practice directed to the exploration of individual musical creativity and to expand improvisation skills. Evaluation by a jury. Prerequisite: MUSI 2644.

3 credits

MUSI 3646 VOICE VI
Emphasis on the development of the personal artistic concept in performance and the use of the knowledge of vocal technique and other resources acquired. Practice directed fundamentally to the interpretation and the expansion of improvisation skills. Evaluation by a jury. Prerequisite: MUSI 3645.

3 credits

MUSI 3655 VIOLA V
Advanced study of the instrument with emphasis on the advanced techniques of improvisation for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2654 or placement by audition.

3 credits

MUSI 3656 VIOLA VI
Integration study of the concepts and the skills learned, directed to professional practice. This course serves as preparation for the course of Graduation Recital. Prerequisite: MUSI 3535 or placement by audition.

3 credits

MUSI 3675 CELLO V
Advanced study of the instrument with emphasis on the advanced techniques of improvisation for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2674 or placement by audition.

3 credits

MUSI 3676 CELLO VI
Integration study of the concepts and skills learned, directed to professional practice. This course serves as preparation for the course of Graduation Recital. Prerequisite: MUSI 3575 or placement by audition.

3 credits

MUSI 3901 COMPOSITION 1
Introduction to the study of traditional techniques of musical composition and orchestration in the field of popular music. Prerequisite: have passed all second year musical courses in the field of popular music.

3 credits

MUSI 4724 ARRANGEMENTS I
Introductory study of the harmonic function of chords and their relation to scales to achieve the adequate combination for the instrument and orchestration. Original arrangements of popular music students. Prerequisites: MUSI 2623, 2624.

3 credits

MUSI 4734 RECORDING I (M.I.D.I. ROOM)
Introductory course of the electronic assembly of any type of musical combination, from a piano solo, trio or quartet to a symphonic orchestra. Prerequisite: MUSI 2623.

3 credits

MUSI 4803 GRADUATION CONCERT
Selection of the repertoire, preparation of the arrangements and the coordination of the practices for the presentation of a 45 minutes recital before a jury, prepared under the guidance of the professor. Includes filming the student's performance in video and audio. To pass the course, a minimum grade of B is required. Prerequisite: have passed all the major courses and be a candidate for graduation.

3 credits

Courses in Portuguese (PORT)

PORT 1001, 1002 ELEMENTARY PORTUGUESE
Essentials of Portuguese grammar with emphasis on the spoken language. Practice in reading and understanding at the elementary level.

4 credits per course

PORT 2001, 2002 INTERMEDIATE PORTUGUESE
Review of grammar and study of Portuguese composition. Emphasis on the spoken language. Practice in reading and understanding at the intermediate level. Prerequisite: PORT 1002 or equivalent.

3 credits per course

Courses in Psychology (PSYC)

PSYC 1051 GENERAL PSYCHOLOGY I
The historical origins of psychology. Topics surveyed include research methods, basics of psychology, human growth and development, personality, frustration and conflict, psychotherapy and social psychology.

3 credits

PSYC 1052 GENERAL PSYCHOLOGY II
Basic principles and methods of psychology as a biological and behavioral science. Learning, memory, thinking, perception, drug influence on behavior, and the psychological bases of development, sensation, motivation, emotion and other aspects of behavior.

3 credits

PSYC 2000 WRITING IN PSYCHOLOGY
Development of bibliographical research and writing skills. Includes the writing of monographs, review of scientific literature, critical analysis and research reports using the APA publishing style.

1 credit

PSYC 3001 STATISTICAL METHODS I
Statistical techniques and their practical application as used in the field of the behavioral sciences. Special emphasis given to descriptive statistics. Prerequisite: GEMA 1000.

3 credits

PSYC 3002 STATISTICAL METHODS II
Statistical inference, probability and the statistical inference with independent and correlated models. Requires 45 hours of lecture and 15 hours of lab. Prerequisite: PSYC 3001.

3 credits

PSYC 3100 LEARNING
Description of the conditions and fundamental principles of the learning process resulting from scientific research. Examination of the classical and operant conditioning, and the origins of cognitive learning. Includes simulations and demonstrations.

3 credits

PSYC 3113 PHYSIOLOGICAL PSYCHOLOGY
Review of the relation between behavior, physiological processes and the nervous system. Emphasis on theories and empirical findings related to physiological psychology and neuroscience. Prerequisite: PSYC 1052.

3 credits

PSYC 3313 INDUSTRIAL-ORGANIZACIONAL PSYCHOLOGY
Review of the origins of industrial/organizational psychology and its research methods in the labor scenario. Emphasis on the study of recruitment processes, personnel selection and performance evaluation. Includes aspects related to personnel training on labor behavior.

3 credits

PSYC 3144 MOTIVATION AND EMOTION
Analysis of the theories and research related to the development of emotional reactions as well as the ways that these and other behavioral patterns are aroused and expressed in humans.

3 credits

PSYC 3220 DEVELOPMENTAL PSYCHOLOGY
Review of the cultural, physical, cognitive, social and emotional aspects and processes of development, from the prenatal period to late adulthood.

3 credits

PSYC 3221 LIFE CYCLE I
Analysis of the cultural, physical, cognitive, social and emotional aspects of development from the pre-natal through the pre-adolescent period. Emphasis on the processes underlying the acquisition and development of behavior throughout the developmental periods; normative behavior for particular ages and developmental stages. Evaluation of selected theories, contemporary issues and practical applications.

3 credits

PSYC 3222 LIFE CYCLE II
Analysis of the cultural, physical, cognitive, social and emotional aspects of development from adolescence through senescence. Emphasis on the processes underlying the acquisition and development of behavior. Normative behavior for particular ages and developmental stages. Evaluation of selected theories, contemporary issues and practical applications.

3 credits

PSYC 3268 INTRODUCTION TO COUNSELING AND PSYCHOTHERAPY
Consideration of various psychotherapeutic approaches and processes in therapy. A critique and method including individual, group and family therapy. Consideration of the role of insight in producing changes in behavior, in establishing objectives of treatment and in the rationale for using behavior, in such specific psychotherapeutic techniques as interpretation and role playing.

3 credits

PSYC 3300 SOCIAL PSYCHOLOGY
Historical development of social psychology taking into account the socialization processes, social perception, attitudes, violence and aggression, among others, and their application to the reality of the social context. Prerequisite: PSYC 1051.

3 credits

PSYC 3313 INDUSTRIAL PSYCHOLOGY
Possible applications of psychology in business and industry, and in improving organizational effectiveness in general supervision, leadership, morale, personnel selection and training; human factors, engineering and consumer psychology.

3 credits

PSYC 3315 INTRODUCTION TO SCHOOL PSYCHOLOGY
Review of the origin and evolution of school psychology as a specialization for psychologists in Puerto Rico. Emphasis on the code of ethics and roles of the school psychologist. Includes aspects of mental retardation and learning problems.

3 credits

PSYC 4000 FUNDAMENTALS OF THE PSYCHOLOGICAL INTERVIEW
Analysis of the principles and application of psychological interview as an instrument of evaluation, follow up and decision making.

3 credits

PSYC 4100 BEHAVIOR MODIFICATION
Analysis of the theories and methods of behavior modifications. Practices of systematic observation and analysis of behavior modification cases. Prerequisite: PSYC 3100.

3 credits

PSYC 4103 COMMUNITY INTERVENTION
Theoretical foundations, methods and models of community psychology and human behavior from a group perspective. Exposure to practical experience to develop community intervention and evaluation skills, emphasizing preventive aspects of psychosocial problems. Prerequisite: PSYC 3300.

3 credits

PSYC 4113 CONTEMPORARY THEORIES
Development of psychology in recent times with emphasis on trends and issues in current psychological theory.
3 credits

PSYC 4200 PRINCIPLES OF PSYCHOLOGICAL TESTING
Principles and methods underlying the construction and evaluation of psychological tests. The process of psychological testing in a broad and dynamic context. The implications of psychological testing taking into account the sociocultural context of the person being evaluated. Prerequisites: PSYC 1051, 3001.
3 credits

PSYC 4210 COGNITIVE PSYCHOLOGY
Review of theoretical and empirical foundations of cognitive psychology. Emphasis is given to attention, memory, recognition of objects, motor control, spatial processing, executive functions, language, and intellectual processes. Prerequisite: PSYC 3113.
3 credits

PSYC 4213 PSYCHOPATHOLOGY
The psychology of deviant behavior. Analysis of problems of the various forms of behavior disorders. Varieties of disordered experiences and conduct; their contribution to an understanding of more effective personal and social adjustment. Specific disorders include neurosis and psychosis as well as psychosomatic and conduct disturbances.
3 credits

PSYC 4234 PSYCHOLOGY OF PERSONALITY
Different approaches to the study of personality from a historic perspective. Analysis of the role assigned to personality as an object of study and treatment. Prerequisite: PSYC 1051.
3 credits

PSYC 4300 GROUP PROCESSES
Theory and practical experience pertaining to small group behavior. Small group work to produce an awareness of group forces and pressures, and to develop insight into personal relationships.
3 credits

PSYC 4313 ORGANIZATIONAL PSYCHOLOGY
Organizational behavior. The role of individuals in the organizational environment. Application of experience in the field of organizational behavior. Prerequisite: PSYC 1051.
3 credits

PSYC 4520 CRISIS INTERVENTION
Discussion and application of models and techniques for intervention in crisis. Exposure to simulated practical experience in which psychotherapeutic methods are used. Prerequisite: PSYC 1051.
3 credits

PSYC 4600 EXPERIMENTAL PSYCHOLOGY
Exposure to the scientific method in the study of behavior. The rationale and methodology in the interpretation of data and design of experiments, as well as the application of research principles to theory and practice. Requires 45 hours of lecture and 30 hours of lab. Prerequisite: PSYC 3002.
4 credits

PSYC 4910 EXPERIENCE IN PSYCHOLOGY SCENARIOS
Supervised practice in scenarios or activities related to applied psychology or research. Requires 120 work-hours of practice or assigned research, with prior authorization of the professor and the department director.
3 credits

Courses in Psychosocial Human Services (HUSE)

HUSE 2020 CONTEMPORARY PUERTO RICAN FAMILY
Current problems affecting the Puerto Rican family and in particular the family's ability to understand the multi-disciplinary effects these have. Emphasis on violence, maltreatment, controlled substance abuse, delinquency, and others. Students will be offered a basic overview of the family system and the intervention techniques to be used with dysfunctional families at the primary level.

3 credits

HUSE 3010 VIOLENCE AND FAMILY MISTREATMENT
Analysis of the phenomenon of family violence. Emphasis on couple relationships, and on conjugal, filial and fraternal violence and mistreatment. Discussion of their evolution as a social problem. Evaluation of the causality factors and their emotional, physical, psychological and legal repercussions on the victim and victimizer. Identification of the alternatives for prevention intervention y rehabilitation.

3 credits

HUSE 3035 CHILDHOOD AND ADOLESCENCE EMOTIONAL, COGNITIVE AND BEHAVIORAL PROBLEMS
Analysis of the characteristics that define cognitive, emotional, and behavioral problems during childhood and adolescence, as well as the most appropriate techniques for their identification, prevention and intervention.

3 credits

HUSE 3110 LEGAL BASIS FOR ADDICTION
Review of the legal component using the criminal and civil framework of the laws at local and federal levels for the control of use and abuse of drugs and alcohol. Analysis of the classifications of offender and the use of informants and undercover agents. Study of the procedures in the detention, prosecution and processing of the offender. Exploration of halfway houses with respect to the criminal process.

3 credits

HUSE 3120 PREVENTIVE MODELS IN DRUG AND ALCOHOL USE
Multidimensional course on preventive models for drug and alcohol use which integrates all community resources to promote the maximum development of its individuals and thus prevent at risk and undesirable behavior. (Emphasis on prevention). Prerequisite: PSYC 3268.

3 credits

HUSE 3130 INTERVENTION MODELS WITH ADDICTIVE BEHAVIOR
Properties and characteristics of addictive substance such as alcohol, narcotics, sedatives, stimulants, hallucinogens and cannabis that induce tolerance, physical and psychological dependency and cause the withdrawal syndrome when they are used during prolonged periods of time. In addition, techniques and biopsychosocial intervention models for the treatment and rehabilitation of the individual. Prerequisite: PSYC 3268.

3 credits

HUSE 3200 CLINIC INTERVIEW
Study of the procedures, skills and attitudes to follow in the clinical interview, its use and application in different contexts of the behavioral sciences.

3 credits

HUSE 3220 FAMILY CONFLICTS INTERVENTION
Analysis of family conflicts intervention theories. Emphasis on the effective handling of crisis situations in the home. Diverse techniques of intervention with crisis situations are modeled.

3 credits

HUSE 4010 ETHICAL, TECHNICAL AND LEGAL CONCEPTS IN OFFERING HUMAN SERVICES
Study of ethical regulations in the treatment of human beings. Discussion of universal ethical principles in social sciences with its corresponding technical and legal questions.

3 credits

HUSE 4020 PSYCHOTHERAPEUTIC TREATMENT TECHNIQUES FOR CHILDHOOD AND ADOLESCENTS DYSFUNCTIONAL BEHAVIOR
Development of the practical skills to help children and adolescents with dysfunctional behavior. Techniques of behavioral modification, and psychotherapy that apply to the context and reality of contemporary Puerto Rican in childhood and adolescence. Prerequisite: PSYC 3268.

3 credits

HUSE 4030 FUNDAMENTALS OF NEUROPSYCHOLOGY
Analysis of the relationship between human behavior in the neuropsychological processes. Emphasis on the study of the central nervous system and its effect on human behavior at different cycles in life. Includes the analysis of neurological and glandular dysfunctions and their effect on maladjusted behavior in light of recent research. Prerequisite: PSYC 1052.

3 credits

HUSE 4910 INTERNSHIP IN DYSFUNCTIONAL FAMILIES
Experience of a practical nature in a dysfunctional family scenario (child abuse, domestic violence and maladjusted adolescents). Students are expected to integrate and implement theoretical fundamentals acquired through their academic training. In addition, students are expected to attain a level of self-conscience in relation to the physical, psychic and social demands of their role as officers in this work scenario. A minimum of 100 hours, supervised by internship personnel and personnel from the study center, is required. Prerequisite: Have passed 30 credits (18 major credits and 12 specialization credits).

3 credits

HUSE 4913 INTERNSHIPS IN DRUG AND ALCOHOL PREVENTION
Experience of a practical nature in a drug and alcohol scenario (Prevention and/or Intervention Center with addicted persons) Students are expected to integrate and implement theoretical fundamentals acquired through their academic training. In addition, students are expected to attain a level of self-conscience in relation to the physical, psychic and social demands of their role as officers in this work scenario. A minimum of 100 hours, supervised by internship personnel and personnel from the study center, is required. Prerequisite: Have passed 30 credits (18 major credits and 12 specialization credits).

3 credits

HUSE 4974 SEMINAR IN POSITIVE LIFE STYLES
Analysis of topics related to dysfunctional conduct: rehabilitation, prevention, alternatives and viable solutions to the new and emergent life styles of the twenty-first century Prerequisite: Have passed 24 credits in 3000 and 4000 level major courses and 12 credits from specialization courses.

3 credits

Courses in Public Administration (PUAD)

PUAD 3300 GOVERNMENT ACCOUNTING
Principles and procedures applicable to governmental accounting: fund reporting, budget relations and interfund relationships will be emphasized.

3 credits

PUAD 3510 PUBLIC BUDGET PLANNING
Role of the modern budget in determining policies regulating government operations, intergovernmental relations, and the government's relation to private economy. Emphasis on unit costs, work programs and budgetary analyses.

3 credits

Courses in Radiological Science (RASC)

RASC 4000 RESEARCH IN RADIOLOGICAL SCIENCES
Analysis of the fundamentals of research methodology. Discussion and presentation of research studies in the radiological and health sciences fields and their application to professional practice.

3 credits

RASC 4030 PROFESSIONAL SEMINAR
Critical analysis of present trends in the field of diagnostic images. Includes the discussion and presentation of exceptional cases found in the practice of the profession.

3 credits

Courses in Radiological Technology (RATE)

RATE 1100 RADIATION PROTECTION
Vision of the principles of radiation protection. The radiological technologist responsibilities for protecting patients, personnel and the public in general. Concepts of ALARA, "As Low as Reasonably Achievable" and NIRL, "Negligible Individual Risk Level". Study of the agencies in charge of radiation protection and its regulations. Prerequisites: Be admitted to the Radiological Technology Program. Corequisites: RATE 1110, 1125, BIOL 1003.

1 credit

RATE 1110 PATIENT CARE
Management and care of patients' physical needs in radiological processes. Ethical and legal aspects, personal care, management of body fluids and allergic reactions in radiological facilities. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: Be admitted to the radiological technology program.

2 credits

RATE 1125 INTRODUCTION TO RADIOLOGICAL TECHNOLOGY
Basic aspects of radiological technology. Evolution of radiology. Laws governing the practice of the profession. Medical terminology related to radiology. Duties and responsibilities of the future professional. Application of professional ethics. Development of positive attitudes towards patients, teamwork and the interaction with other people and professionals who comprise the interdisciplinary health team. Prerequisite: Be admitted to the Radiological Technology Program. Corequisites: RATE 1100, 1110, BIOL 1003.

2 credits

RATE 1221 RADIOGRAPHIC PROCEDURES AND EVALUATION I
Study and evaluation of radiographic procedures and techniques applied to the thorax, abdomen, upper extremities and pectoral girdle. Evaluation and critique of x-rays taken. Development of attitudes of respect, responsibility and confidentiality in the classroom as well as in clinical scene. Practical demonstrations will be used to facilitate the understanding of course contents. Requires 15 hours of lecture and 45 hours of lab. Prerequisites: RATE 1100, 1110, 1125, BIOL 1003. Corequisites: RATE 1230, 2911, BIOL 2151.

2 credits

RATE 1230 PRINCIPLES OF RADIOGRAPHIC EXPOSITION AND PROCESSING
Essential concepts such as the production and of X-rays, formation and the revealing of radiographic images and the handling and use of different radiographic equipment. Discussion of factors that influence the exposition and quality of radiographic images. Practical demonstrations for a better understanding of course content. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: RATE 1110, 1010, 1125. Corequisites: RATE 1221, 2911, BIOL 2151.

3 credits

RATE 2080 CONTRAST MEDIA
Study of the basic concepts of pharmacology. Theory and practice of the administration of the contrast agents and/or intravenous medicines. Emphasis on the proper care of the patient during the procedures that require the use of these agents. Prerequisite: RATE 2912. Corerequisite: RATE 2210, 2222, 2231, 2913.

1 credit

RATE 2210 CRITIQUE AND RADIOGRAPHIC QUALITY CONTROL
Evaluation of radiographic systems to ensure quality in radiological services. Components related to radiographic quality in radiographic equipment, fluoroscopes processing, screens, illuminators, and others. Description of the regulations applied by regulatory agencies. Evaluation of radiographic quality by means of sessions of radiographic critique. Prerequisite: RATE 2912. Corequisites: RATE 2080, 2222, 2231, 2913, BIOL 2152.

3 credits

RATE 2222 RADIOGRAPHIC EVALUATIONS AND PROCEDURES II
Study and evaluation of radiographic procedures and techniques of the skeleton system, such as the lower extremities, the pelvic girdle, the spine and the thoracic box. Includes routine and special positions as well as the safe handling of patients with spinal trauma. Critical evaluation of x-rays taken. Development of attitudes of respect, responsibility and confidentiality. Practical demonstrations will be used to facilitate the understanding of course contents. Requires 15 hours of lecture and 45 hours of lab. Prerequisite: RATE 2912. Corequisites: RATE 2080, 2210, 2231, 2913.

2 credits

RATE 2223 RADIOGRAPHIC PROCEDURES AND EVALUATIONS III
Study of the positions, techniques, indications and contraindications of radiographic studies by using contrasts. Evaluation of radiographic quality, as well as the preparation of patients and allergic reactions. Includes basic positions for cranial and facial radiography. Practical demonstrations will be used to facilitate understanding of the course content. Requires 15 hours of lecture and 45 hours of lab. Prerequisites: RATE 2080, 2210, 2222, 2231, 2913. Corequisites: RATE 2232, 2240, 2250, 2917.

2 credits

RATE 2231 RADIOLOGICAL PHYSICS I
The basic principles of physics applicable to radiation science. The concepts of: physical measures, movement, force and energy, structure of matter and the atom, mechanical waves and sound, electromagnetic radiation and interaction with matter are developed. Prerequisites: RATE 2912, GEMA 1200. Corequisites: RATE 2080, 2210, 2222, 2913, BIOL 2152.

3 credits

RATE 2232 RADIOLOGICAL PHYSICS II
The basic principles of electricity and magnetism applicable to x-rays generation. The basic laws of: electricity and magnetism, generation of currents and electromagnetic fields, electronic circuits and semi conducting elements, cathode ray tubes, x-rays generation and characteristic of radiation are developed. Prerequisites: RATE 2080, 2210, 2222, 2231, 2913. Corequisites: RATE 2223, 2240, 2250, 2917.

3 credits

RATE 2240 RADIOGRAPHIC PATHOLOGY AND MEDICAL TERMINOLOGY
Development of responsibility and professionalism in the student by means of the acquisition of knowledge and understanding of pathological conditions and associated terminology. Transition from the role of student to that of a radiological technology professional as a critical and indispensable member of the health team. Prerequisites: RATE 2080, 2210, 2222, 2231, 2913. Corequisites: RATE 2223, 2232, 2250, 2917.

3 credits

RATE 2250 SECTIONAL ANATOMY
Study of anatomical structures according to their location, function and relation with other structures. Location and identification in axial, sagittal, coronal and oblique planes using sectional corpse photographs. Comparison of photographs with images of magnetic resonance, ultrasound and computerized tomography on the same planes and

at a same level. Emphasis on the particular appearance of each anatomical structure as these are represented in the images of the different diagnosis modalities. Prerequisites: RATE 2080, 2210, 2222, 2231, 2913, BIOL 2152. Corequisites: RATE 2223, 2232, 2240, 2917.

2 credits

RATE 2260 RADIOBIOLOGY
Biological effects, description of the mechanisms and the short and long term effects of ionized radiation. The relationship between sensitivity and specialization of cells and the speed at which they divide. Prerequisites: RATE 2223, 2232, 2240, 2250, 2917. Corequisites: RATE 2270, 2918.

2 credits

RATE 2270 DIAGNOSTIC IMAGE MODALITIES AND EQUIPMENT
Introduction to new modalities of diagnosis by means of different forms of images produced by equipment such as ultrasound, computerized tomography, and magnetic resonance. In addition, topics of special radiographic images will be studied, especially those in which mammography and angiography are included. Comparative images of the different modalities will be presented. Prerequisites: RATE 2223, 2232, 2240, 2250, 2917. Corequisites: RATE 2260, 2918.

2 credits

RATE 2911 CLINICAL PRACTICE I
Knowledge of the current situation of health care. Basic and routine aspects of a radiology department. Observation of the steps to follow for taking x-rays, from the patients' arrival to their leaving. This includes patient registration, reading and interpretation of the radiographic request, patient orientation, execution of the radiographic procedure and development of the film. Modalities within a radiology department: Computerized Tomography (CT Scan), Magnetic Resonance (MRI), Ultrasound (U/S), Mammography, etc. 180 hours of supervised clinical observation in the radiology department of an affiliated health institution. Prerequisites: RATE, 1110, 1100, 1125. Corequisites: RATE 1221, 1230, BIOL 2151.

2 credits

RATE 2912 CLINICAL PRACTICE II
Supervised clinical experiences directed to the integration of the cognitive, affective and psychomotor aspects of radiological technology students. Collaboration and participation in the work undertaken daily in their work environment, and in the application of values and positive attitudes which allow them to develop independence and confidentiality with the purpose of providing excellent treatment to the people with whom they interact. 180 hours of supervised clinical practice in an affiliated health institution. Prerequisites: RATE 1221, 1230, 2911, BIOL 2151. Offered only in summer.

3 credits

RATE 2913 CLINICAL PRACTICE III
Supervised clinical experiences directed to the integration of the cognitive, affective and psychomotor aspects of radiological technology students of. Collaboration and participation in the execution of radiological procedures in the area of the thorax, upper abdomen, extremities and pectoral girdle. Application of values and positive attitudes that permit the development of independence and confidentiality in their work area with the purpose of providing excellent treatment to the people with whom they interact. 270 hours of supervised clinical practice in an affiliated health institution. Prerequisite: RATE 2912. Corequisites: RATE 2080, 2210, 2222, 2231, BIOL 2152.

3 credits

RATE 2917 CLINICAL PRACTICE IV
Supervised clinical experiences directed to the integration of the cognitive, affective and psychomotor aspects of radiological technology students. Collaboration and participation in the execution of radiological procedures in the area of the lower extremities, pelvic girdle, spine and thoracic box. Application of the values and positive attitudes that permit the development of independence and confidentiality in their work area with the purpose of providing an excellent treatment to the people with whom they interact. 360 hours of supervised clinical practice in an affiliated health institution. Prerequisites: RATE 2080, 2210, 2222, 2231, 2913. Corequisites: RATE 2223, 2232, 2240, 2250.

4 credits

RATE 2918 CLINICAL PRACTICE V
Supervised clinical experiences directed to the integration of the cognitive, affective and psychomotor aspects of radiological technology students. Collaboration and participation in the execution of radiological procedures of the skull and studies that entail the application of contrast media. Application of the values and positive attitudes that permit the development of independence and confidentiality in their work area with the purpose of providing an excellent treatment to the people with whom they interact. 360 hours of supervised clinical practice in an affiliated health institution. Prerequisites: RATE 2223, 2232, 2240, 2250, 2917. Corequisites: RATE 2260, 2270.

4 credits

RATE 3050 MAMMOGRAPHIC QUALITY CONTROL
Application of knowledge related to the recent regulations of the Mammography Quality Standards Act (MQSA) for the interpretation of the norm to be used for image quality control and its procedures. Emphasis on the consideration of the components related to radiographic quality in mammography equipment, screens and developing equipment and the check tests of quality that (MQSA) establishes.

3 credits

RATE 3060 CREATION OF RADIOGRAPHIC IMAGES IN COMPUTER
Analysis of the nomenclature used to identify the methods of obtaining digital images. Application of digital x-rays procedures to visualize an image in a monitor.

1 credit

RATE 3070 BREAST ANATOMY AND PATHOLOGY
Analysis of the anatomy, physiology and pathology of the breast in relation to radiographic studies. Includes the etiology and development of breast diseases. Discussion of screening guides recommended by the American College of Radiologists and the American Society of Cancer. Prerequisite: RATE 2240.

2 credits

RATE 3080 RADIOGRAPHIC PROCEDURES AND EVALUATION OF THE BREAST
Evaluation of the procedures and radiographic techniques applied to the breast. Includes examination of x-rays taken in the mammography equipment. Emphasis on the skills of managing radiographic quality, modalities analysis of the breast and special studies, such as ultrasound and magnetic resonance. Prerequisites: RATE 3050, 3070.

3 credits

RATE 3090 FUNDAMENTALS OF ANGIOGRAPHY
Analysis of the basic aspects of angiography. Includes the internal part of the blood vessels requiring angiographies for their diagnosis and treatment. Emphasis on studies of cardiovascular angiography and adjacent organs. Prerequisite: RATE 3060.

3 credits

RATE 4910 CLINICAL PRACTICE IN MAMMOGRAPHY
Supervised practical experiences aimed to integrate knowledge, skills and attitudes. Application of procedures related to the study of the breast. Clinical experiences in different structured scenarios in affiliated and certified health institutions. Requires two hundred (200) hours of clinical practice. Prerequisites: RATE 3050, RATE 3070.

4 credits

RATE 4911 CLINICAL PRACTICE IN ANGIOGRAPHY
Supervised practical experiences aimed to integrate knowledge, skills and attitudes. Application of procedures related to the study of the interior of blood vessels and the vascular diseases requiring angiographies for his diagnosis and treatment. Clinical experiences in different structured scenarios in affiliated and certified health institutions. Requires two hundred (200) hours of clinical practice. Prerequisites: RATE 3060, 3090.

4 credits

Courses in Recreational and Sports Facilities Management (SRIM)

SRIM 1020 FOUNDATIONS OF SPORTS AND RECREATION
Study of the philosophical, historical and social foundations of sports and recreation. Emphasis on the contribution of sports and recreation to the individual and society.

3 credits

SRIM 2300 INTRODUCTION TO SPORTS MARKETING
Introductory study of the total system of integrated marketing and its application to the sports industry. Study of the variables controlled by the company, product, price, promotion and distribution. In addition, consumer behavior, information systems, segmentation, selection of market goals, and the external and internal factors that affect marketing decisions will be studied. Prerequisite: BADM 1900.

3 credits

SRIM 3030 DEVELOPMENT OF PROGRAMMING OF SPORT AND RECREATIONAL CENTERS
Development of programming and philosophy of a sports center (goals, objectives, programming, evaluation, needs studies and others) taking into consideration all related aspects. Prerequisite: SRIM 1020.

3 credits

Courses in Religion (RELI)

RELI 2013 LIVING RELIGIONS
Analysis of the current principal religions of the world, their historical development, beliefs, practices and influence on the contemporary world. Prerequisite: GECF 1010.

3 credits

RELI 2023 BIBLICAL ARCHAEOLOGY AND GEOGRAPHY
Comparative study between the secular and religious perspective of the biblical world: emphasis on the geography, archaeology, culture and history of biblical events.

3 credits

RELI 3013 THE OLD TESTAMENT
Study of the history, literature and religion of the Old Testament. Emphasis on the religion of ancient Israel, its institutions and prophets. Prerequisite: GECF 1010.

3 credits

RELI 3024 THE NEW TESTAMENT
Historical and literary study of the Gospels and of the birth of the Church in the apostolic age. Prerequisite: GECF 1010.

3 credits

RELI 3026 HISTORY OF ISRAEL
Study and analysis of the political, cultural and religious factors from the origins of history of Israel to the New Testament period in the context of Middle East history and its respective geographical circumstances. Prerequisite: GECF 1010.

3 credits

RELI 3034 SPIRITUALITY
Study and analysis of spiritual thought of different mystics from different Christian traditions. Presentation and praxis of diverse models that encourage spiritual growth through prayer, worship, contemplation and introspection. Prerequisite: GECF 1010.

3 credits

RELI 3065 CHRISTIAN ETHICS IN AN ECUMENICAL CONTEXT
History of Christian ethical thinking in an ecumenical context. Prerequisite: GECF 1010.

3 credits

RELI 3220 PRINCIPLES OF CHURCH GROWTH
Analysis of the typical elements and characteristics necessary for the growth and development of communities of faith. Application of the Total Quality Management philosophy as an instrument to make the church effective. Review of a local church in light of the learned principles. Prerequisite: GECF 1010.

3 credits

RELI 3326 HISTORY OF CHRISTIANITY
Events that have shaped Christianity; the heritage of contemporary Christianity. Prerequisite: GECF 1010.

3 credits

RELI 3337 RELIGION IN LATIN AMERICA
The influence of religion in relation to political, economic, social and educational concerns in Latin America. Prerequisite: GECF 1010.

3 credits

RELI 4100 CHRISTIAN EDUCATION
Synoptic study of the development of Christian education within the community of faith. Emphasis on the philosophy, objectives, history, organization and general characteristics of Christian education. Prerequisite: GECF 1010.

3 credits

RELI 4300 CHRISTIAN EDUCATION CURRICULUM
The principles, concepts and available resources for developing a curriculum by levels within the educational program of the church. Prerequisite: GECF 1010.

3 credits

RELI 4353 PHILOSOPHY OF RELIGION
Critical examination of such religious concepts as God and proof of the existence of God, that which is holy, the problem of evil, miracles, the immortality of the soul, and an examination of the tension between faith and reason. Prerequisite: GECF 1010.

3 credits

RELI 4910 INTERNSHIP IN RELIGION
This course is designed to give students the opportunity to apply what they have learned to the internship experience. Students will be placed in a scenario where they will perform an internship in religion with a minimum of 75 hours. Prerequisite: be in the second year of study in the case of the Associate Degree in the fourth the year of study in the case of the Bachelor's Degree.

3 credits

Courses in Reserve Officers Corps: Military Science (MISC)

The following courses are offered by the Department of Military Science or Aerospace Studies of the University of Puerto Rico in Río Piedras or Mayagüez (see the norms that apply to these courses in this catalog, "General Information" concerning Reserve Officers Training Corps).

MISC 3111 FOUNDATIONS OF OFFICERSHIP
Introduces students to issues and competencies that are central to a commissioned officer's responsibilities. Establishes a framework for understanding officership, leadership, and army values followed and "life skills" such as physical fitness and time management.

2 credits

MISC 3112 BASIC LEADERSHIP
Establishes foundation of basic leadership fundamentals such, as problem solving, communications, briefings and effective writing, goal setting, techniques for improving listening and speaking skills and introduction to counseling.
2 credits

MISC 3121 INDIVIDUAL LEADERSHIP STUDIES
Students identify successful leadership characteristics through observation of others and self through experiential learning exercises. Students record observed traits (good and bad) in a dimensional leadership journal and discuss observations in small group settings.

2 credits

MISC 3122 LEADERSHIP AND TEAMWORK
Study examines how to build successful teams, various methods for influencing action, effective communication in setting and achieving goals, the importance of timing the decision, creativity in the problem solving process, and obtaining team buy-in through immediate feedback.

2 credits

MISC 3141, 3142 ENGLISH FOR TODAY'S ARMY I, II (BASIC LEVEL)
This course is designed for those students who have demonstrated a limited proficiency in the English language in the English Comprehension Level Test provided by the Defense Language Institute, English Language Center at Lackland Air Base, San Antonio, Texas. Emphasis on pronunciation, reading comprehension, vocabulary and a general review of grammar.

1 credit per course

MISC 3143, 3144 ENGLISH FOR TODAY'S ARMY 1, II (INTERMEDIATE LEVEL)
This course is designed for those students who have demonstrated a limited proficiency in the English language in the English Comprehension Level Test provided by the Defense Language Institute, English Language Center at Lackland Air Base, San Antonio, Texas, Emphasis on pronunciation, reading comprehension, vocabulary and a general review of grammar.

1 credit per course

MISC 3151, 3152 MILITARY BRIEFING I, II
Courses designed for third year Military Science students who have demonstrated certain ability or dexterity in the English language as measured by the English Comprehension Level Test (ECLT), the official Department of Defense English language proficiency test. Practice in military briefings, with special emphasis on formal and informal outlines, and the correct use of military visual aids. Leadership evaluation, including an acculturation seminar. Each course requires 30 hours of lecture, seminars or practical exercises. To be taken only as electives.
2 credits per course

MISC 4111 LEADERSHIP AND PROBLEM SOLVING
This course is designed to enable a student with no prior military or cadet experience to quickly acquire essential cadet knowledge and develop skills necessary for integration into the cadet battalion and to show successful performance of key cadet tasks. Cadets are first introduced to principles of physical fitness and a health lifestyle so they may effectively work to improve or maintain their physical fitness from the beginning of the term. Next, cadets are introduced to the Leader Development Program that will be used to evaluate their leadership performance and provide them development for the rest of their years as cadets. To help prepare cadets for their responsibilities in teaching and participating in Military Sciences and Leadership Labs, cadets are taught how to plan and conduct individual and small unit training as well as basic tactical principles.

2 credits

MISC 4112 LEADERSHIP AND ETHICS
Course designed to continue the development of cadets as leaders by presenting instruction in the three foundational areas on interpersonal communication, values and ethics, and leadership. The course opens with an introduction and overview of the summer training opportunities at the National Advanced Camp (NALC) and other available training programs. Next, cadets address the topic of interpersonal communication and Officership.

2 credits

MISC 4121 LEADERSHIP AND MANAGEMENT
This course enables cadets to make informed career decisions as they prepare their accession documents. It also concentrates on Army operations and training management, communication and leadership skills and supports the beginning of the final transition from cadet to lieutenant.

2 credits

MISC 4122 OFFICERSHIP
This course focuses on four areas: first, the course gives cadets a basic foundation in military law; next, skills and information on leadership and military science are pulled together in a series of case studies where cadets apply what they have learned from earlier courses; third, cadets are given a series of hands-on-practice sessions to assist them with their transition to officers; and last, the Senior Leadership Project offers cadets a culmination of the ROTC learning experience in the form of a semester-long activity whereby cadets can integrate, apply and demonstrate their knowledge and mastery of military leadership.

2 credits

MISC 4141 MILITARY WRITING I
Courses designed for military students who wish to improve their military writing skills in English. Emphasis on military writing styles and formats. Topics include military memorandums, autobiographies, military history analysis, and a military ethics paper. Each course requires 30 hours of lecture, seminars, case studies, or practical exercises. To be taken only as electives.

2 credits

Courses in Reserve Officers Corps: Aerospace Studies (AEST)

AEST 3001, 3002 THE AIR FORCE TODAY
Study of the Air Force in the contemporary world through study of the total structure of the Armed Forces, including the offensive strategic forces of aid or support. Requires one hour of discussion and two hours of lab per week. Course 3001 is a prerequisite of 3002.

2 credits per course

AEST 3003 THE AIR FORCE TODAY
Study of the Air Force in the contemporary world, through study of the total structure of the Armed Forces including the offensive strategic forces of aid or support. Requires one hour of discussion and two hours of lab per week. Prerequisite: AEST 3002.

2 credits

AEST 3011, 3012 THE DEVELOPMENT OF AIR POWER
The development of air power from the use of balloons and dirigibles to the present. It relates, in addition, to the places where the United States Air Force is used in missions of aid and civic assistance, as well as in conflicts such as the war of south-east Asia. Requires one hour of discussion and two hours of lab per week. Course 3011 is a prerequisite of 3012.

2 credits per course

AEST 3013 THE DEVELOPMENT OF AIR POWER
The development of air power from the use of balloons and dirigibles to the present. It relates, in addition, to the places where the United States Air Force is used in missions of aid and civic assistance, as well as in conflicts such as the war of south-east Asia. Requires one hour of discussion and two hours of lab per week. Prerequisite: AEST 3012.

2 credits

AEST 4001, 4002 LEADERSHIP AND MANAGEMENT IN THE AIR FORCE
Application of the concepts of management with special attention in the individual as a leader in the Air Force. Topics such as individual motivation and behavior processes, leadership, group dynamics, basic managerial

processes for decision-making, analytical methods for planning, organizing and controlling; personal and organizational values; power and the organizational policy are discussed. The abilities necessary to communicate in both oral and written English are emphasized. Real cases of the Air Force are used to improve the student processes of learning and communication. Requires three hours of discussion and two hours of lab per week. Course 4001 is a prerequisite of 4002.

4 credits per course

AEST 4003 LEADERSHIP AND MANAGEMENT IN THE AIR FORCE
Application of the concepts of management with special attention in the individual as a leader in the Air Force. Topics such as individual motivation and behavior processes, leadership, group dynamics, basic managerial processes for decision-making, analytical methods for planning, organizing and controlling; personal and organizational values; power and the organizational policy are discussed. The abilities necessary to communicate in both oral and written English are emphasized. Real cases of the Air Force are used to improve the student processes of learning and communication. Requires three hours of discussion and two hours of lab per week. Requisito: AEST 4002.

4 credits

AEST 4011, 4012 NATIONAL SECURITY FORCES IN CONTEMPORARY AMERICAN SOCIETY
Factors that affect the national security policy. The concept of military professionalism and the patterns of relationship between the civil and the military are examined. The domestic and international factors that affect the United States defense policy are analyzed. The development from World War II of the defense strategy and the methods to handle conflicts are examined. The multiple variables that affect the formulation and the implementation of the national security policy are studied. Requires three hours of discussion and two hours of lab per week. AEST 4003 is a prerequisite of 4011 and AEST 4011 is a prerequisite of 4012.

4 credits per course

AEST 4013 NATIONAL SECURITY FORCES IN CONTEMPORARY AMERICAN SOCIETY
Factors that affect the national security policy. The concept of military professionalism and the patterns of relationship between the civil and the military are examined. The domestic and international factors that affect the United States defense policy are analyzed. The development from World War II of the defense strategy and the methods to handle conflicts are examined. The multiple variables that affect the formulation and the implementation of the national security policy are studied. Requires three hours of discussion and two hours of lab per week. Prerequisite: AEST 4012.

4 credits

Courses in Restaurant and Food Services Administration (FSMT)

FSMT 1210 SANITATION AND SECURITY IN FOOD SERVICES
Elaboration of a plan using current control guides in preparing and serving foods. Study of the biological, chemical and physical aspects in food security. Discussion and application of health and security practices in the work scene.

1 credit

FSMT 1220 SERVICE THEORIES AND PRACTICES
Study of general norms for serving tables and formal table manners. Discussion of theories and styles for serving clients. Application of service norms.

2 credits

FSMT 2101 PURCHASING SYSTEMS AND INVENTORY AND STORAGE CONTROL
Description of purchasing, distribution and selection systems. Study of product quality and available specialized equipment for different food services. Discussion of different types of storages and inventory controls.

2 credits

FSMT 2104 BUFFET AND CATERING SERVICES
Description of the development, operation and management of buffet and catering businesses. Comparison of traditional meals and buffets. Planning of buffet and catering services. Design of creative concepts in planning the business. Prerequisites: FSMT 1210, 1220, TURI 3302.

3 credits

FSMT 2203 RESTAURANT MANAGEMENT
Application of management skills to analyze, plan, implement and control the operation of a restaurant. Identification and application of international concepts in managing this type of establishment. Requires additional time in an open lab. Prerequisites: FSMT 1210, 1220, 2101, HMGT 3302.

3 credits

FSMT 2915 RESTAURANT MANAGEMENT INTERNSHIP
Practice in a real scenario of the learned concepts, skills and attitudes, especially in the major courses. Work experience supervised by a member of the faculty in the field of restaurant management. Students are required to devote at least 15 hours to lecture courses and 200 hours to practice. Must be taken with previous authorization of the director of the Department. Prerequisites: ACCT 1161, FSMT 2101, TURI 3302.

3 credits

Courses in Russian (RUSS)

RUSS 1001, 1002 ELEMENTARY RUSSIAN
Essentials of Russian grammar with emphasis on the spoken language.

4 credits per course

Courses in Small Business Administration (SBAD)

SBAD 2110 INTRODUCTION TO SMALL BUSINESS ADMINISTRATION
Administration and organization in relation to types of businesses, location and physical plant. Application of marketing, finance, accounting concepts, and government laws applying to the administration of small businesses.

3 credits

SBAD 2210 RELATIONS WITH THE SMALL BUSINESS CONSUMER
Psychological and socio-cultural factors affecting the relations between clients and the development of a small business. Analysis of the relations between clients and the search of alternatives to satisfy their needs, and the influences that they may have in the decision-making process of the organization. Prerequisites: MKTG 1210, SBAD 2110.

3 credits

SBAD 3220 PROMOTION AND SELLING THROUGH INTERNET
Design, development and implementation of promotional and sales material through the Internet. Search for information to help the management of small business in the decision-making process. Strategies and methods, which include the image of the business, target market, and consumer buying behavior. Analysis and selection of segmentation methods, planning design and promotional plan. Prerequisites: MKTG 1210, SBAD 2110, GEIC 1010.

3 credits

SBAD 3330 HUMAN RESOURCES ADMINISTRATION IN SMALL BUSINESSES
Techniques and Methodologies in the management of employees in small businesses. Includes roles of management and leadership styles, as well as interpersonal relations. Emphasis on techniques for planning, recruitment, selection, placement, training, and management of specific employee problems, with main emphasis on communication and motivation of employees. Includes orientation and training on benefits, as well as their assessment. Prerequisite: BADM 1900.

3 credits

SBAD 3335 FEDERAL AND PUERTO RICAN LAWS FOR SMALL BUSINESS ADMINISTRATION
Basic Principles of laws and regulations applicable to small business administration. It includes the civil code of Puerto Rico, commercial code, annotated laws of Puerto Rico, federal laws, and regulations of the Small Business Administration agency. Prerequisite: SBAD 2110.

3 credits

Courses in Social Work (SOWO)

SOWO 2503 INTRODUCTION TO SOCIAL WORK
Study of the historical development of the social work profession: principles, values, knowledge, sanctions and social policy and self-understanding skills.

3 credits

SOWO 2514 SOCIAL POLICIES AND SERVICES
Relationship between social problems, public policy, organized programs and services given. Prerequisite: SOWO 2503.

3 credits

SOWO 3413 SOCIAL SERVICES AND THE AGED
Aging process; identification of factors that influence the aging process; interrelationships between those factors and the evaluation of the aged; basic principles of social work as applied to the aged; tendencies and institutions providing service to the aged. Prerequisite: SOWO 2503.

3 credits

SOWO 3461 HUMANS AND THEIR SOCIAL ENVIRONMENT I
Human development and behavior through the general systems theory. Review of environmental forces; their implications for individuals, the analysis of society, culture, community, social organization and small groups as human systems; implications for social work. Prerequisite: SOWO 2503.

3 credits

SOWO 3462 HUMANS AND THEIR SOCIAL ENVIRONMENT II
Family and individuals as systems; examination of various theories of behavior and human development; their implications for assessment and intervention in social work. Prerequisite: SOWO 3461.

3 credits

SOWO 3504 INTRODUCTION TO AGENCY ADMINISTRATION AND SUPERVISION
Basic principles, processes and practices in the administration and supervision of agencies. Prerequisite: Permission from the Chairperson of the Department of Social Work.

3 credits

SOWO 3545 SOCIAL PLANNING AND ACTION
Processes of planning; social planning; technical and interactional skills necessary for formulation, implementation and evaluation of social plans; responsibilities of social workers as citizens and professionals and their public obligations related to social problems and needs. Prerequisites: SOWO 2503, 2514.

3 credits

SOWO 3566 WOMEN IN SOCIETY
Interdisciplinary studies to develop student knowledge of and sensitivity to the history, education, employment, sociology and psychology of women. Emphasis on sex roles, stereotyping and recent legislation regarding women's rights in family, education and employment.

3 credits

SOWO 3801 COMMUNICATION AND INTERVIEW PROCESS
Analysis of the conceptual structure of communication and the intra and interpersonal skills for conducting the interview. Study of the nature, elements, types and characteristics of the interview, as well as of its relation to human diversity, the values, ethics and purposes of the profession. Integration of the theoretical knowledge of communication and the interview to the models of intervention used in Social Work. Prerequisites: SOWO 2514, SOWO 3462.

3 credits

SOWO 3802 REPORT WRITING
Study of the concepts related to the writing of case histories used in different social welfare agencies and programs. Analysis of social files for individuals, groups and communities. Discussion of ethical and legal aspects of file management. Prerequisite: SOWO 3801.

3 credits

SOWO 3828 SOCIAL AND COMMUNITY GROUPS GENERALIST SOCIAL WORK
Study of the theoretical frameworks of the operation and needs of small community groups and organizations that make up the community. Emphasis on understanding the human-environmental relationship within groups and communities. Prerequisites: SOWO 2514, 3461.

3 credits

SOWO 3849 CHILD AND FAMILY WELFARE SERVICES
Problems in parent-child relationships and difficulties in the social functioning of children and adolescents. Introduction to the nature, processes, practice and policies relative to welfare services for children and families; includes support services such as service agencies for the family and mental health clinics; supplementary services such as housekeepers; substitute services such as foster homes, adoption agencies and others.

3 credits

SOWO 4873 SOCIAL SCIENTIFIC RESEARCH METHODOLOGY
Processes and techniques utilized by the social scientist to formulate and verify descriptions of social phenomena. Use of research and statistical methods; application of principles of research in the social sciences. Research design, sampling, models, instruments for data collection, tabulation and analyses; interpretation and application of findings. Prerequisite: PSYC 3001.

4 credits

SOWO 4911 PRACTICE EXPERIENCES IN GENERALIST SOCIAL WORK I
Integration of knowledge and development of skills for beginning professional practice in social work. Includes a practice seminar consisting of three hours weekly. In addition, this course requires a minimum of 200 hours of practice during the semester, with the supervision of a specialist. This course may not be substituted with work experience. Prerequisites: SOWO 3802, 4931.

4 credits

SOWO 4912 PRACTICE EXPERIENCES IN GENERALIST SOCIAL WORK II
Application of the knowledge, skills and principles of professional ethics of the generalist social worker in a community agency in more complex intervention situations. Includes a practice seminar consisting of three hours weekly. In addition, a minimum of 200 hours of practice under the supervision of a specialist in the area is required. This course may not be substituted with work experience. Prerequisite: SOWO 4911.

4 credits

SOWO 4931 PRACTICE METHODS IN GENERALIST SOCIAL WORK I
Study of the intervention methods, techniques and skills used by the generalist social work practitioner. Emphasis on the individual and family client systems. Prerequisites: SOWO 3462, 3801.

3 credits

SOWO 4932 PRACTICE METHODS IN GENERALIST SOCIAL WORK II
Study of small groups, communities and organizations as client systems. Application of intervention method from the generalist social worker perspective. Prerequisites: SOWO 3828, 4931. Corequisite: SOWO 4911.

3 credits

Courses in Sociology (SOCI)

SOCI 1030 INTRODUCTION TO SOCIOLOGY
Definition of the principles, fundamental concepts and facts related to the scientific study of society.

3 credits

SOCI 2020 STRUCTURES, CONTINUITY AND CHANGE
Identification of structures and social institutions and their manifestations through norms, sanctions and the social stratification. Study of the processes of continuity and social changes. Emphasis on collective behavior and the social movements.

3 credits

SOCI 2040 FAMILY AND SOCIETY
Description of the family as a social institution in contemporary state and traditional, societies and their influence in the development of the individual's personality.

3 credits

SOCI 2050 URBAN SOCIETY AND ITS TRANSFORMATION
Identification of the metropolitan areas: social structures, recent changes, problems, institutions and potentialities.

3 credits

SOCI 2060 VIOLENCE AND CRIMINAL CONDUCT
Description of the theories and main criminological schools and their applicability in the interpretation of the characteristics and causes of delinquency in Puerto Rico. Relation between the local and global violence and criminal conduct. Emphasis on drug trafficking, social inequality, the institutionalized values and the criminal policy. Includes review of criminology's auxiliary sciences, such as: penology, criminology and victimology.

3 credits

SOCI 2070 CIVIL SOCIETY AND SELF-MANAGEMENT
Description of the theoretical perspective on civil society. Review of the implications of these perspective in the development of communitarian socio-economic strategies.

3 credits

SOCI 2080 CRIMINAL JUSTICE SYSTEM IN PUERTO RICO
Discussion of the criminal justice system in terms of its components: the police, the public ministry, the courts and the penal institutions.

3 credits

SOCI 3010 DIVERSITY AND MARGINALITY
Analysis of the exclusion and inclusion processes of social groups from the point of view of ethnic differences and similarities and of gender, age, handicapped people and other points of view related to prejudices and the social tensions.

3 credits

SOCI 3070 COMMUNITY AND SOCIOECONOMIC DEVELOPMENT
Analysis of the strategies communities use for the development of the human and physical resources of a geographic zone. Identification of the planning initiatives that result in an increase of communitarian capital and the socioeconomic well-being of the community.

3 credits

SOCI 3513 RURAL SOCIETY IN TRANSITION
Analysis of the agrarian producing societies, the changes affecting rural life and the current programs for the development of rural society.

3 credits

SOCI 3560 REHABILITATION SYSTEMS FOR THE DELINQUENT
Analysis of the different systems of rehabilitation of delinquents and their application in the public and private institutions of the country and the social reaction that they generate.

3 credits

SOCI 3570 NONPROFIT ORGANIZATIONS
Analysis of pertinent aspects of the historical development of nonprofit communitarian organizations. Includes ideas, establishment of operations and contemporary challenges.

3 credits

SOCI 3634 GROWTH AREAS
Analysis of developing societies, the solutions and alternatives, product of the internal development and integration into global systems in Latin America, Asia and Africa.

3 credits

SOCI 3645 STUDIES OF POPULATION
Introduction to the sociological analysis of human populations in qualitative, quantitative and statistical terms. Emphasis on the processes of demographic changes of the Puerto Rican population and the global population.

3 credits

SOCI 3753 SOCIAL PROBLEMS OF PUERTO RICO
Analysis of social problems from the sociological perspective, their magnitude and the mechanisms used for their solution. Review of the contradictions and anomalies exhibited by contemporary Puerto Rican society. Integration of the alternatives related to viable economic development and the construction of a better quality of life.

3 credits

SOCI 3900 HISTORY OF SOCIAL THOUGHT
Analysis of the history of social thought from antiquity, with emphasis on centuries XIX and XX, in Europe, Asia and the Americas.

3 credits

SOCI 4050 SOCIOLOGICAL THEORIES
Analysis of the theoretical classic and modern approaches of sociology. Review of contemporary theories and postmodern trends.

3 credits

SOCI 4060 CRIMINOLOGY AND DELINQUENCY
Review of the scientific aspects of current criminal research based on the use of technology as a tool. Review of the process of the criminal act through inspection of the scene and the application of techniques.

3 credits

SOCI 4220 GENDER, SOCIETY AND CULTURE
Interdisciplinary study of various fields of knowledge from the perspective of the social construction of gender. The principle manifestations and representations of gender are analyzed in areas such as science, technology, education, religion, literature and the arts. Analysis of the integration of gender in the social discourse on sexuality, race, ethnic groups, old age and identity.

3 credits

SOCI 4600 HUMAN RIGHTS AND SOCIETY
Identification of the human social and civil rights of people and communities, in the local as well as in the international environment. Specific techniques oriented towards achieving solutions to the diverse problems of

people and communities are reviewed. Integration of policies that improve the standards of life, especially of the very poor.

3 credits

SOCI 4800 SOCIOLOGICAL RESEARCH
Analysis and practice of methods and techniques of sociological research. Includes the collection and interpretation of data as well as their ethical and political implications. Emphasis on the critical correlation among theories, methods and techniques in the research process. Prerequisites: SOCI 1030, 2020, PSYC 3001.

4 credits

SOCI 4817 HISTORY OF SOCIAL WELFARE
Review of programs and institutions designed to ameliorate the social ills from earliest times to the present; present-day methods in social work; U.S. Social Security program. Prerequisites: SOCI 3485 and senior class status.

3 credits

SOCI 4870 MANAGEMENT OF COMMUNITARIAN PROJECTS
Review of the theories and planning models and implementation of social communitarian research projects. Exchange of experiences on management strategies and practices in projects and the use of tools that influence monitoring and evaluation.

3 credits

SOCI 4910 INTERNSHIP
Integration of concepts, ideas and attitudes by means of a supervised practical application experience in communitarian agencies, institutions and organizations where students will be placed in the Internship for a minimum of 75 hours in communitarian social development or in criminology. Includes, in addition, 15 hours of dialog and discussion in the classroom. Prerequisites: Have passed 12 credits of the major and have an academic index of at least 2.50.

3 credits

SOCI 497 _ SEMINAR
An integrating analysis of the ideas and main problems of the discipline through the study of variable topics or subjects. Prerequisites: Have passed 9 credits of the major.

3 credits

Courses in Spanish (SPAN)

SPAN 2451, 2452 SPANISH COMPOSITION AND LITERATURE FOR NON-NATIVE SPEAKERS
Through the reading and discussion of selected materials, students are helped to acquire a command of the Spanish language. Emphasis on oral expression and written composition with special stress on syntax. Enrollment limited to twenty students per section.

3 credits per course

SPAN 2510 INTRODUCTION TO TEXT ANALYSIS
Study of the basic techniques in text analysis: theme and plot identification, points of view, styles and prosody. Introduction to literary genres through practice in the analysis of representative works. Prerequisite: GESP 1102.

3 credits

SPAN 2541 ADVANCED GRAMMAR I
Discussion of the phonological, morphosyntactical and semantic systems of the Spanish language. Emphasis on the theoretical explanation and construction of the morphosyntactic structures of the simple sentence.

3 credits

SPAN 2542 ADVANCED GRAMMAR II
Systematic discussion of the morphosyntactic and semantic aspects of complex sentence structures. Emphasis on the theoretical explanation and the construction of complex morphosyntactic structures. Prerequisite: SPAN 2541.

3 credits

SPAN 3000 LINGUISTICS
Analysis of the fundamental concepts of current linguistics in the phonological, lexical semantic and morphosyntactical aspects and their application to the teaching of the Spanish of Puerto Rico.

3 credits

SPAN 3011 SPANISH LINGUISTICS I
Study of the formative and evolutionary process of the Spanish language from its beginnings to the present: phonology and lexicology.

3 credits

SPAN 3012 SPANISH LINGUISTICS II
Study of the formative and evolutionary process of the Spanish language from its beginnings to the present: morphology and syntax. Prerequisite: SPAN 3011.

3 credits

SPAN 3015 ORAL COMMUNICATION
Acquisition and practice of the necessary skills for oral expression through the discussion of different topics and the development of ability in oral comprehension. Presentation and preparation of argumentative and expository speeches. Prerequisite: GESP 2203 with a minimum grade of C.

3 credits

SPAN 3020 WRITING WORKSHOP
Analysis and application of the writing process leading to expository and argumentative text production. Emphasis on the application of research techniques in the development of formal written expression. Prerequisite: Have passed GESP 2203 with a minimum grade of C.

3 credits

SPAN 3021 SPANISH LITERATURE I
Study of the authors and main movements of Spanish literature from its beginnings to the Golden Age. Analysis of the most representative works of this period.

3 credits

SPAN 3022 SPANISH LITERATURE II
Study of the authors and main movements of Spanish literature from the eighteenth century to the present. Analysis of the most representative works of this period.

3 credits

SPAN 3025 WRITING OF PROFESSIONAL DOCUMENTS
Development of professional writing skills. Emphasis on research techniques, resumes, reports, and lectures. Computer use in writing. Prerequisite: GESP 2203 with a minimum grade of C.

3 credits

SPAN 3071 SPANISH-AMERICAN LITERATURE I
Study of the authors and main movements of Spanish-American literature from the pre-Columbian period to realism-naturalism. Analysis of the most representative works of these periods. Development of oral and written communication skills through analysis of the works studied.

3 credits

SPAN 3072 SPANISH-AMERICAN LITERATURE II
Study of the authors and main movements of Spanish-American literature from modernism to the present. Analysis of the most representative works of these periods. Development of oral and written communication skills through analysis of the works studied.

3 credits

SPAN 3211 PUERTO RICAN LITERATURE I
Study of the authors and main movements of Puerto Rican literature from chronicles to realism. Analysis of the most representative works of these periods. Development of oral and written communication skills through analysis of the works studied.

3 credits

SPAN 3212 PUERTO RICAN LITERATURE II
Study of the authors and main movements of Puerto Rican literature from modernism to the present time. Analysis of the most representative works of these periods. Development of oral and written communication skills through analysis of the works studied.

3 credits

SPAN 397 _ SPECIAL TOPICS
Study of important topics in the area of linguistic or literature. Prerequisites: Authorization of the Department Director.

3 credits

SPAN 4010 READING WORKSHOP
Analysis and practice of the reading process for strengthening and refining the understanding and text interpretation skills. Emphasis on the practice of techniques for the development of critical reading.

3 credits

SPAN 4015 TRANSLATION WORKSHOP
Development of the basic skills for translation from English to Spanish. Use of translated texts to improve communication in Spanish. Prerequisite: GESP 2203 with a minimum grade of C.

3 credits

SPAN 4110 LITERATURE OF THE GOLDEN AGE: RENAISSANCE
Study of the Spanish Renaissance and its most representative authors in its historical-cultural context. Analysis of the main works of this period.

3 credits

SPAN 4120 LITERATURE OFTHE GOLDEN AGE: BAROQUE
Study of the Spanish Baroque and its most representative authors in its historical-cultural context. Analysis of the main works of this period.

3 credits

SPAN 4125 REPRESENTATIVE WORKS OF SPANISH DRAMATIC ART
Analysis of main representative works of the different Spanish theatrical movements beginning with the Golden Age.

3 credits

SPAN 4170 SPANISH-AMERICAN LITERATURE OF THE NINETEENTH CENTURY
Study of the historical-cultural background of the most representative literary movements of the nineteenth century in Spanish-America: romanticism, realism-naturalism and modernism. Analysis of representative works of each movement.

3 credits

SPAN 4175 CONTEMPORARY SPANISH-AMERICAN LITERATURE: NARRATIVE AND THEATER
Study of the development of the narrative and theater in Spanish-America, through its main authors, during the twentieth and twenty first centuries. Analysis of the most representative works in both genres.

3 credits

SPAN 4185 SPANISH-AMERICAN DIALECTOLOGY
Analysis of the contemporary trends in the Spanish-American dialectology: phonology, morph syntax, lexicon and influence of other languages.

3 credits

SPAN 4196 THE LANGUAGE OF PUERTO RICO
Analysis of the Spanish spoken in Puerto Rico: phonology, morph syntax, lexicon, influence of English and the other languages.

3 credits

SPAN 4200 SPANISH LITERATURE OF THE NINETEENTH CENTURY
Study of the historical-cultural background of the literary movements of the nineteenth century in Spain: romanticism and realism. Analysis of representative works of each movement.

3 credits

SPAN 4210 CONTEMPORARY SPANISH LITERATURE
Study of the development of Spanish literature from the Generation of '98 to the present. Analysis of the most representative works of this period.

3 credits

SPAN 4275 CONTEMPORARY SPANISH-AMERICAN LITERATURE: POETRY AND ESSAY
Study of the development of poetry and essay in Spanish-America, through its main authors, during the twentieth and twenty first centuries. Analysis of the most representative works in both genres.

3 credits

SPAN 4285 CONTEMPORARY NARRATIVE OF THE HISPANIC CARIBBEAN
Analysis of contemporary narrative texts written in Spanish beginning in 1970 from a redefinition of the Caribbean that includes the archipelago as well as its continental centers.

3 credits

SPAN 4300 PUERTO-RICAN LITERATURE OF THE NINETEENTH CENTURY
Study of the historical-cultural background of the nineteenth century literary movements in Puerto Rico. Analysis of the most representative works and authors of each movement.

3 credits

SPAN 4350 CONTEMPORARY PUERTO RICAN LITERATURE: NARRATIVE AND THEATER
Study of the development of Puerto Rican narrative and theater during the twentieth and twenty first centuries. Analysis of the most representative works in both genres.

3 credits

SPAN 4375 CONTEMPORARY PUERTO RICAN LITERATURE: POETRY AND ESSAY
Study of the development of Puerto Rican poetry and essay during the twentieth and twenty first centuries, through its main authors. Analysis of the most representative works in both genres.

3 credits

Courses in Speech and Language Therapy (SPTH)

SPTH 2020 ANATOMY AND PHYSIOLOGY OF SPEECH AND LANGUAGE
Introduction to the mechanisms of the human body related to the processes of auditory reception, essential understanding and voice production, language and verbalization. Emphasis on the respiratory, neurological and muscular systems, and on the organs that create speech: language, hearing, phonation and verbalization.

3 credits

SPTH 2021 NORMAL DEVELOPMENT OF LANGUAGE
Study of the normal development of language in children from childhood to adolescence. Includes the necessary mental requirements for language. Review of the different theories of language development and the study of its components. Analysis of the relevance and relationship of normal language development to the acquisition of academic skills and learning. Requires experience in the observation of children in natural environments.

3 credits

SPTH 2022 INTRODUCTION TO AUDIOLOGY
Discussion of acoustics and the psychoacoustic human processes. Emphasis on the review of the different types and degrees of auditory loss as well as its effect in linguistic development and academic learning. Includes practical experience in the administration of auditory evaluations of children and adolescents.

3 credits

SPTH 2023 CLINICAL AND ADMINISTRATIVE PROCEDURES IN THE SPEECH AND LANGUAGE THERAPY PROFESSION
Discussion of the main functions that speech and language therapists perform as established t in the law that regulates the practice of professionals of Speech and Language Therapy, Speech Pathology, and Language and Audiology in Puerto Rico. Emphasis on the functions related to early identification, evaluation procedures, service documentation, therapeutic planning, the maintenance of files and orientation to parents, as part of the basic functions of the speech and language therapist.

3 credits

SPTH THE 2024 USE OF TECHNOLOGY IN THE PRACTICE OF SPEECH AND LANGUAGE THERAPY
Use of computer application programs and their use in the administrative and clinical tasks that speech and language therapists perform. Includes the review of commercial computer programs and their adaptation to the particular needs of clients or patients.

3 credits

SPTH 3000 DEVELOPMENT OF SPEECH: NORMAL AND PATHOLOGICAL PROCESSES
Study of normal and pathological phonetic development in children. Emphasis on the functions of the oral mechanism in the production of phonemes and the linguistic aspects that influence in the phonological processes. Discussion of the most common therapeutic approaches used in intervention with children and adolescents. Includes observation experiences and evaluation of verbalization practices of children. Prerequisites: SPTH 2020, 2021.

3 credits

SPTH 3010 FLUENCY DISORDERS IN CHILDREN
Identification of fluency disorders in children and adolescents. Includes the review of different theories on fluency disorders, as well as their characteristics. Presentation of intervention strategies for correction and dealing with such disorders. Includes observations in therapeutic interventions with children with fluency disorders. Prerequisite: SPTH 2021.

3 credits

SPTH 3015 VOICE DISORDERS IN CHILDREN
Discussion of voice disorders in children and adolescents with emphasis on evaluation and treatment of such disorders. Observation of children and adolescents with auditory loss is required. Prerequisites: SPTH 2020, 2021, 2022.

3 credits

SPTH 3020 IDENTIFICATION AND TREATMENT OF CHILDREN WITH ORAL LANGUAGE DISORDERS
Analysis of understanding and production problems of oral language in children. Intervention strategies with children with oral language disorders are reviewed. Includes observations of therapeutic interventions with children with oral language disorders. Prerequisite: SPTH 2021.

3 credits

SPTH 3021 IDENTIFICATION AND TREATMENT OF CHILDREN WITH WRITTEN LANGUAGE DISORDERS
Analysis of the problems of understanding and formulation of written language in children. Review of the most common intervention strategies used with children with written language disorders. Observations in therapeutic interventions with children with written language disorders are required. Prerequisite: SPTH 2021.

3 credits

SPTH 3110 CLEFT PALATE AND CRANIOFACIAL ANOMALIES
Analysis of the communication disorders associated with cleft palate and other craniofacial anomalies. Discussion of the different approaches to therapeutic intervention in speech and language with children and adolescents with such diagnoses. Emphasis on the procedures of communication evaluation in infants, pre-school and school age children. Requires observations of therapy of a child with this diagnosis. Prerequisites: SPTH 3000, 3010, 3015.

3 credits

SPTH 3120 INTERVENTION WITH CHILDREN WITH HEARING IMPAIRMENTS
Discussion and analysis of intervention strategies and clinical procedures used in speech and language therapy with children and adolescents with auditory loss. Includes observations in speech and language therapy sessions of children and adolescents with auditory loss. Prerequisites: SPTH 2020, 2022.

3 credits

SPTH 3130 PSYCHO-SOCIAL AND COGNITIVE CONDITIONS ASSOCIATED WITH SPEECH AND LANGUAGE PROBLEMS
Study of communication disorders associated with mental retardation, learning problems, deficit of attention, selective muteness, sociocultural deficiency, autism and bilingualism. Discussion of therapeutic methods of intervention in speech and language with children and adolescents with such diagnoses. Observations of a speech therapy session with a child with one of the conditions studied in the course are required. Prerequisite: SPTH 2021.

3 credits

SPTH 3140 EARLY INTERVENTION
Analysis of communication development during the first two years of life. Emphasis on the indicators of communication delay in infants and the strategies of stimulation and early intervention with this population. Observations and evaluation of infants in care centers are required. Prerequisite: SPTH 2021.

3 credits

SPTH 4110 AUGMENTATIVE AND ALTERNATE AID FOR COMMUNICATION IN CHILDREN
Discussion of the benefits of alternate and augmentative aid that facilitate communications in children and adolescents with disorders. Emphasis on adaptation, the design of equipment and the technological assistance materials that will be used with children and adolescents with communication disorders. Observations and use of different technologies are required.

3 credits

SPTH 4120 SIGN LANGUAGE
Study of sign language. Theoretical and practical analysis of this. Emphasis on manual communication systems, on the techniques of nonverbal communication, on the American Sign Language (ASL) and the recognition of non verbalized expression by means of sign language.

3 credits

SPTH 4130 TREATMENT OF CHILDREN WITH SEVERE CONDITIONS
Application of the necessary clinical skills for intervention with children and adolescents with severe disorders. Emphasis on the development of the functional communication skills of THL related to this population. Prerequisites: SPTH 2021, 3000.

3 credits

SPTH 4135 DYSPHAGIA IN CHILDREN
Analysis of the aspects related to intervention with children with feeding and swallowed disorders. Discussion of the phases in the feeding process, swallowing problem indicators and the recommended exercises to work with the problems in the oral and pharyngeal phases. Prerequisite: SPTH 2020.

3 credits

SPTH 4140 CONTEMPORARY TOPICS IN SPEECH AND LANGUAGE THERAPY
Discussion of current topics related to the nature, identification and therapeutic approaches to children and adolescents with speech and language disorders. Includes the review and discussion of articles of professional magazines and scientific literature related to research in the field.

3 credits

SPTH 4912 CLINICAL PRACTICUM I
Practical experience designed on the application of evaluation skills and treatment of children and adolescents with speech and language disorders. Requires the completion of a minimum of 40 hours of supervised practice in a clinical scenario, five hours of meetings with the professor, the approval of the course with a minimum grade of B and compliance with all requirements established in the Practice Manual.

3 credits

SPTH 4913 CLINICAL PRACTICUM II
Practical experience designed on the application of the skills acquired in Clinical Practice I. Requires the completion of a minimum of 70 hours of supervised practice in two different clinical scenarios, 35 hours in each clinical scenario and 5 hours of meetings with the professor, the approval of the course with a minimum grade of B and compliance with all the requirements established in the Practice Manual. Prerequisite: SPTH 4912.

4 credits

Courses in Tourism (TURI)

TURI 1020 FUNDAMENTALS OF TOURISM
Basic concepts and general areas in tourism as one of the important components of a country's development. The importance of tourism to the local and world economy. The characteristics of Puerto Rico for development of this industry. The socioeconomic impact of tourism.

3 credits

TURI 1030 DATA PROCESSING IN HOTELS
Organization and operation of travel agencies. Preparing itineraries, reservations and excursions. Applying rates and filling out documentation.

2 credits

TURI 1040 FIRST AID
Training in first aid and medical emergency techniques in hotels and open areas.

1 credit

TURI 1050 TOURISM GUIDE
Functions and responsibilities of a guide. Types of guides. Requirements to practice the profession. Handling maps for designing and reading routes. Professional ethics and psychological factors that affect groups.

3 credits

TURI 1200 TOURIST QUALITY AND SERVICES
Development of the skills necessary to achieve client satisfaction in all areas of quality of service and to obtain the mutual benefits of tourism to the company, the residents and the visitors. Analysis of the challenges that the tourism industry has to anticipate the needs of the visitors and exceeding their expectations with good quality services to stay competitive.

3 credits

TURI 1900 HOTEL MANAGEMENT
Study of the hotels and hotel management. Location and construction of hotels, hotel indicators, minimum occupancy, prospecting and viability. Study of the operational structure. Establishing chains of command and interdepartmental relationships. Prerequisites: TURI 1020, ACCT 1161, BADM 1900.

3 credits

TURI 2000 LAWS AND TOURISM
The most important laws and regulations in the tourism field in Puerto Rico. Knowledge of the legal organization of tourism in the country. Laws and regulations in the federal jurisdiction of the United States applicable to Puerto Rico and international organism regulations that in some way influence tourism. Prerequisites: TURI 1020.

3 credits

TURI 2010 RECEPTION DEPARTMENT
Systematic focus on procedures in a hotel reception office. Includes the complete process from reservations to checkout and billing. Review of management elements to achieve effectiveness, planning and evaluating performance and human resources within a general operational context of a hotel.

2 credits

TURI 2020 TOURISM AND GEOGRAPHY IN PUERTO RICO
History of the development of tourism in Puerto Rico. Places of tourist interest on the Island. Geography and topography of Puerto Rico and its main characteristics. Puerto Rican flora and fauna. Includes an open lab. Prerequisites: GEHS 2010.

3 credits

TURI 2030 INTERCULTURAL COMMUNICATION
Verbal and non-verbal communication as they influence perceptions, feelings, affections and actions of other people and cultures and the implications for tourism.

3 credits

TURI 2040 TOUR PLANNING AND DEVELOPMENT
Characteristics and methods for efficiently planning tourist excursions. Evaluation of tourist areas, preparing excursions, determining rates, preparing itineraries and reservations. Emphasis on the relationship among tourists, travel agencies, hotels and transportation services.

3 credits

TURI 2050 WORLD GEOGRAPHY AND TOURISM
Principal world tourist destinations and their historical, geographical, human, economic and tourist diversity.

3 credits

TURI 2060 TOURIST MARKETING
Review of the concepts and application of marketing, principles and strategies directed towards tourism and hotel services. Analysis of the principles of traveler conduct, market study, prices, promotion, distribution and services.

3 credits

TURI 2200 CULTURE AND TOURIST DESTINATIONS OF PUERTO RICO
Study of the main tourist destinations of Puerto Rico, with emphasis on their culture, activities, history and tourist development. Study of touristic attractions, as well as the social behavior that makes these destinations prosperous.

Those destinations that by tradition have not been developed, but which have the potential of tourism development will be discussed.

3 credits

TURI 2400 HOUSEKEEPING MANAGEMENT
Systematic focus and management of room operations in a hotel and its public areas. The different operation areas, management of inventory, control of costs and management of human resources. Prerequisite: BADM 2250.

3 credits

TURI 2600 PHYSICAL FACILITIES MANAGEMENT
Principles and basic concepts for management of buildings and land in hotels and restaurants to effectively work with engineering and maintenance departments. Structural aspects, services, waste reduction and cost control.

3 credits

TURI 2910 INTERNSHIP TOURIST ADMINISTRATIVE ASSISTANT
Learning experiences for the specialization of Tourist Administrative Assistant in a center approved by the faculty for the practice of acquired theories, concepts and skills. Requires one hundred and fifty (150) hours of practice and fifteen (15) hours of seminar for a total of one hundred sixty-five (165) hours. Prerequisite: Authorization from the Director of the Department.

3 credits

TURI 2913 INTERNSHIP TOURISM GUIDE
Learning experiences for the specialization of Tourist Guide in a center approved by the faculty for the practice of acquired theories, concepts and skills. Requires one hundred and fifty (150) hours of practice and fifteen (15) hours of seminar for a total of one hundred sixty-five (165) hours. Prerequisite: Authorization from the Director of the Department.

3 credits

TURI 3000 TOURISM PLANNING
Integrated study of planning, emphasizing basic system concepts, decision-making, resource analysis techniques, tourism programs and services including the preparation of plans. Analysis of the functions of the planning process applied to the field of tourism.

3 credits

TURI 3010 ECOTOURISM AND SUSTAINABLE TOURISM
Analysis of the importance of the good management of the environmental, economic and sociocultural resources of a tourist destination. Study of sustainable tourism and its relation to planning a development based on improving the quality of life of the population, the experience of the visitor, the conservation of the environment and the achievement of higher levels of economic prosperity for the residents of the area, through the tourist activity.

3 credits

TURI 3100 INFORMATION SYSTEMS
Importance of the available information systems and their application. Planning expenses, projections, tourist resource inventories and strategies used by competitors to reach their customers. Prerequisites: TURI 3000, MAEC 2221, MKTG 1210.

3 credits

TURI 3200 HUMAN RESOURCES MANAGEMENT IN THE HOTEL INDUSTRY
Analysis of the effectiveness of the regulations and related practices with personnel through conferences, discussions and case studies. Emphasis on hiring, selection, assignment and development of human resources. Emphasis on the study of practices related to personnel in the hotel industry. Prerequisites: TURI 2400, BADM 1900.

3 credits

TURI 3210 PLANNING AND TOURIST DEVELOPMENT
Survey of the factors that determine the success of a tourist destination as they relate to the planning and policies for the development of a country. Analysis of the planning process from its objectives to implementation. Evaluation of the importance of the architectonic design and the cultural patrimony in tourist facilities.

3 credits

TURI 3220 TRIP RESERVATION SYSTEM
Analysis of the basic concepts of the use of computerized reservation systems for tourism agencies. Reservations for methods of transportation, lodging, restaurants and other touristic services. Quotes, creation and emission of travel documents such as: tickets, vouchers and others.

3 credits

TURI 3230 ACCOMMODATIONS DEPARTMENT ADMINISTRATION
Integrated study of the accommodations department consisting of the reserve-reception areas, concierge, housekeeping, engineering and maintenance. Description of key concepts of this department, as well as the use of simulated and practical systems for student development in this area. Requires 45 hours of lecture-lab. Prerequisite: BADM 2250.

3 credits

TURI 3300 FOOD AND SERVICES MANAGEMENT
Importance of food management and control of material supplies and services. Development of a continuous plan for determining standards, operational budgets, analysis and control of costs, labor expenses, volume and profits, income and price calculations.

3 credits

TURI 3400 MEETINGS AND CONVENTION MANAGEMENT
Sales process and servicing the meetings market. Identification and study of the segments that form this market. Analysis of effective sales techniques for these segments. Planning and developing different types of services for conventions and meetings. Prerequisites: HMGT 1060, 2010, 2400.

3 credits

TURI 3500 INFORMATION SYSTEMS IN THE HOTEL INDUSTRY
Fundamental aspects of computerized systems and management of hotel information systems. Application of the computer to food, beverages, purchasing, sales and accounting. Prerequisite: TURI 1900.

3 credits

TURI 4303 FOOD AND BEVERAGE MANAGEMENT III
Different types of foods and beverages. Application of concepts of food and beverage preparation and service. Analysis and control of total costs in planning and serving food and beverages. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: TURI 3302.

3 credits

TURI 4400 ADMINISTRATION AND ORGANIZATION OF GROUPS AND CONVENTIONS
Analysis of the meetings and conventions industry, concentrating on the practical study, planning, supervision and control guides used by planners of professional events. Discussion of the organization, preparation and operation of conventions, exhibitions and events. Emphasis on the ways and methods of sales used in the reserve of convention groups and events, as well as the distribution of administrative responsibilities in the operation.

3 credits

TURI 4910 INTERNSHIP IN TOURISM ADMINISTRATION
Learning experiences in a real scenario for the specialization of tourism administration in a center approved by the faculty for the practice of the theories, concepts and acquired skills. Requires three hundred (300) hours of internship in the practice center. Prerequisite: Authorization of the Director of the Department or the Program Coordinator.

3 credits

TURI 4915 INTERNSHIP

Practice theories and learned concepts in a real setting. Work experiences supervised in the field of management of lodging facilities and under the supervision of a faculty member. The student is required to devote at least 15 hours to lectures and 90 hours to the practice center to complete the assigned work. Course must be taken the last academic term. Prerequisite: prior approval of the Department Director.

3 credits

Faculty of the University

Central Office Administrators with Faculty Rank

BOSCIO VARGAS, AMAURY F., Catedrático Auxiliar. Vicepresidente Auxiliar de Investigación Académica y Recursos Externos. B.A. Universidad de Puerto Rico, M.A.T., Montclair State College.

CABRERA COLLAZO, RAFAEL L., Catedrático de Historia. Vicepresidente Asociado de Asuntos Académicos. B.A., M.A., Ph.D. Universidad de Puerto Rico.

COLÓN ORELLANO, MAGGIE, Instructora. Directora Ejecutiva de Recursos Humanos. B.A., M.B.A. Universidad Interamericana de Puerto Rico.

COLÓN RONDÓN, CARMEN IDALIA, Instructora. Directora Institucional del Programa de Servicios para Estudiantes Adultos (AVANCE). B.A. Universidad de Puerto Rico; M.S.W. Universidad Interamericana de Puerto Rico.

DE LAS CASAS GIL, ANTONIO, Catedrático Asociado de Física. Vicepresidente Auxiliar de Aprendizaje a Distancia. M.A. Universidad de Zaragoza, España.

DOMÍNGUEZ RODRÍGUEZ, NORBERTO, Catedrático Auxiliar. Vicepresidente de Asuntos Religiosos. B.A. Universidad de Puerto Rico; M.Div. Seminario Evangélico de Puerto Rico.

ECHEVARRÍA SANTIAGO, AGUSTÍN, Catedrático. Vicepresidente de Asuntos Académicos, Estudiantiles y Planificación Sistémica. B.A., J.D. Pontificia Universidad Católica de Puerto Rico.

ENCARNACIÓN VÁZQUEZ, ELBA I., Catedrática de Educación. Vicepresidenta Asociada de Asuntos Estudiantiles. B.A., M.A. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

FERNÓS LÓPEZ-CEPERO, MANUEL J., Catedrático. Presidente de la Universidad. B.B.A., J.D. Universidad de Puerto Rico; LL.M. New York University.

GONZÁLEZ PÉREZ, YOÍSA, Instructora. Directora Institucional de Planificación, Información Académica y de Investigación. B.A., M.P.L., Universidad de Puerto Rico.

JIMÉNEZ MENÉNDEZ, TOMÁS M., Catedrático de Filosofía. Director Ejecutivo de la Oficina del Presidente. B.A., M.A. Universidad de Puerto Rico.

NARVAÉZ NEGRÓN, MAGDIEL, Catedrático Asociado. Director Ejecutivo de la Oficina de la Junta de Síndicos. B.A. Universidad Interamericana de Puerto Rico; M.A. Seminario Evangélico de Puerto Rico; J.D. Universidad Interamericana de Puerto Rico.

ORTIZ APONTE, MARITZA, Catedrática de Educación. Directora Institucional de Acreditación y Licencias. B.A. Universidad de Puerto Rico; M.B.A., Ed.D. Universidad Interamericana de Puerto Rico.

RAMÍREZ TORO, GRACIELA, Catedrática de Biología. Directora del Centro de Educación, Conservación e Interpretación Ambiental. M.A. Hood College; Ph.D. Drexel University.

RIVERA CLAUDIO, NÉLIDA, Catedrática Auxiliar de Gerencia. Directora del Centro para el Desarrollo Profesional y Eventos Especiales. B.B.A. Universidad de Puerto Rico; M.B.A., Ed.D. Universidad Interamericana de Puerto Rico.

RIVERA GONZÁLEZ, ANTHONY, Catedrático Asociado de Ciencias Políticas e Historia. Director Institucional de Asuntos Curriculares. B.A. Universidad de Puerto Rico; M.A. Bowling Green State University.

ROSSO BONILLA, MARÍA I., Instructora de Ciencias Sociales. Directora de Servicios al Estudiante e Intercambio Internacional. B.A., M.A. Universidad de Puerto Rico.

SANTIAGO NIEVES, ISAAC. Catedrático Auxiliar de Psicología. Director de Retención Estudiantil Institucional. B.A. Universidad de Puerto Rico; M.S., Ph.D. Universidad Carlos Albizu.

SARRIERA OLIVERA, CARMEN M., Catedrática Asociada de Español. Directora Ejecutiva del Consejo Universitario. B.A. Universidad del Sagrado Corazón; M.A. University of Washington.

SCALLEY TORRES, ELIZABETH, Catedrática de Ciencias Sociales. Directora Ejecutiva de la Oficina de Monitoría, Evaluación e Investigación Sistémica. B.A., M.A. Universidad de Puerto Rico; Ph.D. Fordham University.

WOOLCOCK RODRÍGUEZ, KAREN, Catedrática de Biología. Directora Institucional de la Oficina de Avalúo de Servicios Estudiantiles. B.S., M.S., Ph.D. Universidad de Puerto Rico.

Faculty Affiliated with Other Institutions

(Faculty with academic Rank in other institutions that teach and assign grades to Inter American University students.)

Army ROTC Program
University of Puerto Rico, Mayagüez Campus

Programa del ROTC del Ejército
Universidad de Puerto Rico, Mayagüez

CHICO, FÉLIX, Supervisor e Instructor de Inglés. M.A. Universidad de Puerto Rico.
DÁVILA, EDGAR, Capitán. Catedrático Auxiliar de Ciencias Militares. B.B.A. Universidad de Puerto Rico.
DELGADO ROMERO, DENISE, Instructora de Inglés. B.S., M.S., M.Ed. Universidad Interamericana de Puerto Rico.
HERNÁNDEZ, WILLIAM, Capitán. Catedrático Auxiliar de Ciencias Militares. B.S. Universidad Interamericana de Puerto Rico.
HODGE, MILTON, Teniente Coronel. Catedrático Auxiliar de Ciencias Militares. B.S. Kentucky Christian University.
PLAZA COLÓN, JOSÉ, Teniente Coronel. Catedrático de Ciencias Militares. M.A. University of Massachusetts.
PÉREZ LOURDES, Instructora de Inglés. B.A., M.A.Ed. Universidad de Puerto Rico.
PÉREZ, MILTON Teniente Coronel. Catedrático Auxiliar de Ciencias Militares. M.B.A. Touro University, California.
REYES, ISRAEL, Teniente Coronel. Catedrático Auxiliar de Ciencias Militares. B.S. Kansas State University; M.S. North Carolina State University.
RIVERA, ARNOLD, Capitán. Catedrático Auxiliar de Ciencias Militares. B.A. Universidad de Puerto Rico; M.A. Pontificia Universidad Católica de Puerto Rico.
ROBLES, ROSA, Instructora de Inglés. B.S.
ROSARIO, PEDRO J., Teniente Coronel. Catedrático Auxiliar de Ciencias Militares. B.A. Universidad de Puerto Rico; M.B.A. University of Phoenix.
SÁNCHEZ, PABLO, Capitán. Catedrático Auxiliar de Ciencias Militares. B.B.A. Universidad Metropolitana.
SANTIAGO, JAIME, Capitán. Catedrático Auxiliar de Ciencias Militares. B.B.A.Universidad Interamericana de Puerto Rico; M.A. Webster University.
STARK, ANDREA R. Instructora de Inglés. B.A. Eastern Washington University, M.A. Monterey Institute of International Studies.

AirforceROTC Program
University of Puerto Rico, Mayagüez Campus
Department of Aerospacial Studies

GHERARDY, JUAN G., Capitán, Instructor de Estudios Aeroespaciales, B.A. University of Texas.
RODRÍGUEZ, GLORIMAR G., Capitán, Instructora de Estudios Aeroespaciales, M.B.A. Nichols College of Massachusetts.
TORAÑO, FRANCISCO A., Teniente Coronel, Instructor de Estudios Aeroespaciales, M.B.A. en Aviación, Universidad Ambry Riddle.

Airforce ROTC Program
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