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The University will make all reasonable efforts to maintain up-to-date information in this Catalog. However, it reserves the right to revise or change rules, revise tuition fees, service charges, requirements for programs of study, the requirements for degrees and academic distinctions, course content and any other arrangements that might affect students whenever it deems necessary or desirable.

Students are responsible for reading and understanding the academic, administrative and disciplinary policies and regulations as well as the general requirements for the degree they hope to obtain, from the moment they register in the University. They are also responsible for meeting the major requirements once they declare said major. Students deciding to change their major will be responsible for complying with the requirements in effect at the time they declare the new major.

Graduation requirements as well as academic curricula and programs may change while students are registered at the University. These changes will not be applied retroactively, but students have the option of completing the new requirements. Nonetheless, when professional certifying or licensing agencies make requirement changes for the corresponding certification or license, the necessary changes to the curricula or programs will be applicable immediately. Students will have the responsible for deciding if they wish to take the new courses.

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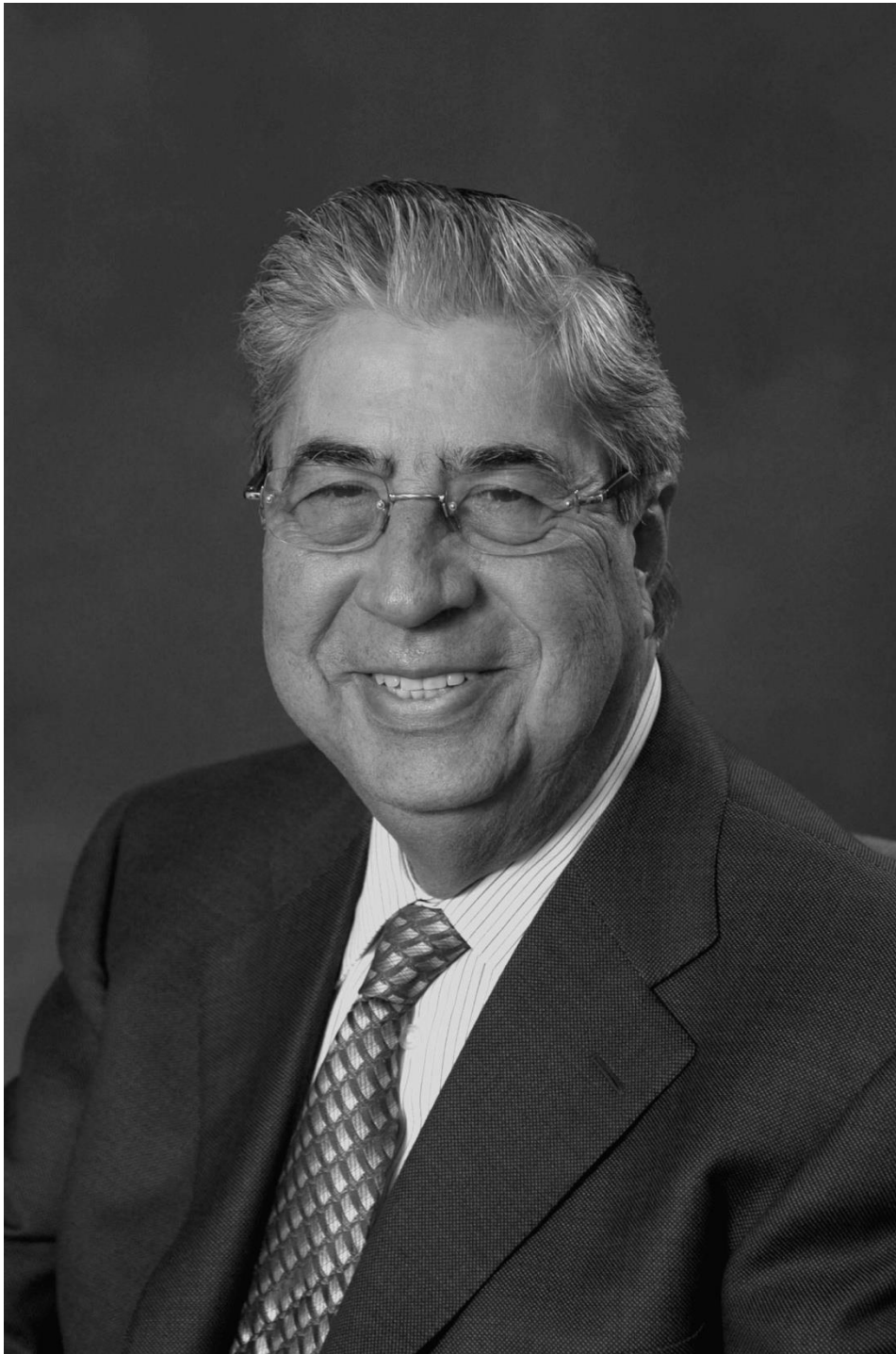
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General Information

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 for the training of students under the various GI Bill® programs. The programs of the University are authorized by the Council on 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

Inter American University of Puerto Rico has the mission to offer post-secondary and higher education in the arts and sciences, by means of teaching, research and community service, within an ecumenical Christian context. In addition, it offers educational programs at the pre-school, elementary and secondary levels.

The University, also, contributes to society, by educating people that come from different socioeconomic sectors, within and outside Puerto Rico. It incorporates in its offerings and services, innovating study modalities supported by informatics and telecommunications. The University aims to prepare its graduates to be responsible and cultured citizens, with democratic and Christian values, who are conscious of their social and environmental obligation, and are able to perform competently and exercise leadership in an occupational or professional context.

The University aims to maximize the educational potential of students in an environment without discrimination, in compliance with the law, the accreditation regulations and standards, and in harmony with the search for academic excellence. It, also, aims to make the best use of this environment to develop critical thinking, scientific knowledge, and sensitivity towards the arts, ethical responsibility and the skills of social coexistence.

Goals of the University

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

1. To promote, in the university community, an environment oriented towards a culture of peace, based on ethical, democratic and institutional Christian-ecumenical values, directed to the integral development of the student.
2. To promote an integral education that leads to the formation of an educated person, well-versed in the different fields of the human knowledge, by means of the development of the capacity for critical thinking, the adequate use of the communication skills in Spanish and English, ethical and civic responsibility, environmental awareness, skills of social integration, and the knowledge of science, the arts and religious education within a Christian-ecumenical context.
3. To respond to the needs of the student population and society by offering a variety of both presential and online learning programs, within and outside Puerto Rico, at the different educational levels.
4. To foment academic excellence by means of the continuous development of the teaching staff in the mastery of their discipline, as well as in the application of techniques, modalities and teaching methods, in harmony with the nature of the student population.
5. To foment the development of knowledge through research and creative activities in the academic community.
6. To promote efficiency and effectiveness in the teaching, administrative and student processes and services, in harmony with the provisions in the applicable laws and regulations, as well as in the standards of the accrediting agencies.

7. To cultivate leadership of the university community so that it may contribute to social and cultural enrichment of our country and to its economic development, by means of participation in communitarian, business and professional projects.

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 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 organizations, such as:

- 1) Accreditation Board for Engineering and Technology (ABET)
 - Bayamón Campus
- 2) Accreditation Commission for Education in Nursing”) (ACEN)
 - Aguadilla, Arecibo and Metropolitan campuses (BSN)
 - Aguadilla and Metropolitan Campus (AAS)
- 3) Accreditation Council for Business Schools and Programs (ACBSP)
 - Bayamón Campus
- 4) Accreditation Council for Occupational Therapy Education (ACOTE)
 - Ponce Campus
- 5) Accreditation Council on Optometric Education (ACOE)
 - School of Optometry
- 6) American Bar Association (ABA)
 - School of Law
- 7) Aviation Accreditation Board International (AABI)
 - Bayamón Campus
- 8) Commission on Accreditation in Physical Therapy Education (CAPTE)
 - Ponce Campus
- 9) Commission on Collegiate Nursing Education (CCNE)
 - San Germán Campus
- 10) Council on Accreditation of Nurse Anesthesia Educational Program (CANAEP)
 - Arecibo Campus
- 11) Council on Social Work Education (CSWE)
 - Arecibo and Fajardo campuses (BA)
 - Metropolitan Campus (BA, MSW)
- 12) International Assembly for Collegiate Business Education (IACBE)
 - San Germán Campus: The San Germán Campus received a specialized accreditation for its Business Administration programs by the *International Assembly for Collegiate Business Education (IACBE)* located on 11374 Strang Line Road, Lenexa, Kansas, USA.
- 13) International Association for Continuing Education and Training (IACET)
 - Aguadilla, Arecibo, Barranquitas, Bayamón, Fajardo, Guayama, Metropolitan, Ponce and San Germán campuses
 - School of Law
 - School of Optometry
- 14) Joint Review Committee on Education in Radiologic Technology (JRCERT)
 - Ponce Campus (AAS)
 - San Germán Campus (AAS, BS)
- 15) National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
 - Metropolitan and San Germán campuses (BS, Professional Certificate)
- 16) Network of International Business Schools (NIBS)
 - Metropolitan Campus (Division of Economic and Administrative Sciences)
- 17) Teacher Education Accreditation Council (TEAC)
 - Aguadilla, Arecibo, Barranquitas, Fajardo, Guayama, Metropolitan, Ponce and San Germán campuses (Teacher Education Program)

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)

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

The University is approved for the training of students under the various GI Bill® programs. 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 online 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

Inter American University grants admission in its campuses for a determined time, in any registration period within the academic year. All candidates for admission must present documents that credit their identity for authentication purposes (identification with photo such as a passport or a current driver's license). The admission is valid for the academic term in which it is granted. However, the validity of the admission may be extend, at the request of the applicant, for an an additional period, not greater than one academic or its equivalent.

Admission to the University does not imply admission to a particular study program.

Applicants interested in studies totally through online learning should consult the section "Admission Requirements to Online 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 to Academic Programs at the Undergraduate Level

In case students must meet some specific requirement to be admitted to an academic program, they will be granted a provisional admission.

1. Students must meet the requirements, with a minimum grade of C or as required for the study program they wish to attend, before or during the maximum period of time stipulated for this.
2. If students do not complete the totality of the required courses at the end of the time limit, they will be evaluated by the department director to determine if they can receive an extension of one academic term to continue their studies.
3. Students, who do not meet the requirements of provisional admission in a reasonable time, must change to a study program for which they meet the admission requirements.

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 comply with one of the following options (A o B):

Option A:

1. Submit evidence (transcript of credits) of having completed the graduation requirements of an accredited high school or its equivalent with a minimum grade point index of **2.00** or its equivalent.
2. Submit the results obtained in the *Pruebas de Evaluación y Admisión Universitaria* (PEAU) offered by the College Board. The PEAU consist of two parts: (a) the test of Academic Aptitude (Verbal and Mathematical Reasoning) and (b) the test of Academic Achievement in Spanish, Mathematics and English.

For more information on the Spanish version of the test (PEAU) you may access the email address <http://www.collegeboard.com/ptorico/pr/program/peau.html> or write to:

College Board
Puerto Rico and Latin America Office
208 Ponce de Leon Ave.
Popular Center, Floor 15
Hato Rey, Puerto Rico 00918-1017

Students whose first language is English may present the results obtained in the Scholastic Aptitude Test.

For more information on the Scholastic Aptitude Test, you may access the email address <http://student.collegeboard.org/>.

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

Option B:

1. Submit evidence (transcript of credits) of having completed the graduation requirements of an accredited high school or its equivalent with a minimum grade point index of **3.00** or its equivalent.
2. This admission option does not require the presentation of the results of the PEAU or the Scholastic Aptitude Test.

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 15 for	Trimester III	(February)

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 online 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. Submit 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. Not be suspended for disciplinary reasons at the educational institution of origin.
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 Credit Policy

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. Once the course from Inter American University is identified as equivalent to the course taken at the institution of origin, the confirmation will be made.

The credit-hours granted will be those that are specified in this Catalog for the course. Generally, students obtaining scores of 3 or above on the PEAU tests will receive university level credit.

Students who hold a bachelor's degree from another institution are exempt from taking general education courses and are only required to take the GECF 1010 - Introduction to the Christian Faith, a three (3) credit course, at Inter American University if it has not been approved at the institution of origin. The corresponding comment will appear in the student's file.

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. Every transferred course will

be entered as an attempted and approved course for purposes of the satisfactory academic progress norm and the norm for repeating courses.

If students take a course that is in their academic record as a transferred course and receive a grade, the administrative action symbol T must prevail in the file. If the student obtains the grade of C or above, this will be considered to determine the general academic index and the academic index in the study program, as applicable. If the student obtains a grade of D or F, this will not be considered to determine these indices.

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.
3. Not be suspended for disciplinary reasons at the educational institution of origin.

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

Admission to undergraduate programs leading to a Bachelor's degree requires that the applicant has completed secondary studies equivalent to the high school graduation requirements of Puerto Rico.

Foreign students may be admitted when they meet the following requirements:

1. Proof of the degree equivalency submitted by an evaluating agency of recognized credentials.
2. Have a satisfactory high school grade point index (2.00 or equivalent).

These students are exempt from taking and presenting the results of admission tests of the University or of aptitude tests, such as the PEAU or the SAT. The Institution may require an admission interview or the writing of an essay.

Foreign students interested in entering the University must submit their questions to the academic unit to which they wish to be admitted.

If the applicant is admitted, the Admissions Office will complete the I-20 form of the Citizenship and Immigration Service of the United States of America so that the proceedings to obtain the student visa may be completed. Students admitted to study totally online do not have to complete this form.

Admission of Special Students

Special students will be:

1. students of other institutions of higher education that have authorization to take courses at Inter American University of Puerto Rico (IAU) to fulfill requirements of their home institution. These students will be required to present a certification indicating the courses they are authorized to take at IAU;
2. persons not interested in obtaining an academic degree, but in taking courses for their professional or personal improvement;
3. teachers of the Department of Education of Puerto Rico (DEPR) who want to satisfy some requirement of that agency. An official document of the DEPR indicating the courses they must take will be required;
4. high school students authorized to take advanced courses as part from their high school requirements;
5. students from other universities participating in student exchanges.

Special students will not be required to submit a copy of their academic file to be admitted.

The special students described above in numbers 1 to 4 will not be eligible for federal Title IV, or state financial aid.

All applicants who later decide to continue their studies with a view to obtaining a university degree or certificate must comply with the University's requirements and admission procedures, in harmony with the study program of their interest.

In case special high school students are later admitted as university students, the courses already approved may be accredited to them.

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 academic affairs 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, who at the time of a readmission have completed 80% of the study program, may request an evaluation in agreement with the requirements of the program in which they were admitted initially. This provision will not apply to those students whose study program requires some specific certification or license in order to practice the profession. For all other academic or administrative processes, the student will be governed by the provisions of the General Catalog in effect at the time of his 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 with an interdisciplinary and critical analysis approach that enhances the development of the student as an educated person.

The objectives of the Honors Program are:

- To identify talented students whose abilities, needs, interests and motivations are or require an attention different from those of the students of the regular program.
- 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 by means of multidisciplinary honor studies.
- To establish and foment an academic environment that stimulates talented students in their academic and leadership aspirations and promotes their total and integral development.
- Facilitate economic incentives based on academic merit.

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. Students may be admitted in other terms, subject to the availability of funds.
2. First year students with a high school index of 3.50 or above and an admission index of 1,300 points or more will be considered for admission. Freshman students coming from high school will receive the invitation letter to apply for the Program along with their letter of admission to the University.
3. Second and third year students with a general grade point index of at least 3.50, and who met the academic progress norm in their immediately prior term of studies will be considered for admission at the moment they request admission to the program. Students who interrupt their studies in the Honors Program may be considered for readmission if they satisfy the retention requirements of the Program and present a letter requesting readmission.
4. Transferred students that meet the criteria of second year students may request admission to the Program. However, the academic file of the university of origin will be used.
5. 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
 - b. One (1) letter of recommendation from a professor or teacher
 - c. Answers to guide questions
 - d. Certification of commitment to participate in co-curricular and student development activities such as: student organizations, leadership activities, internships, exchanges, academic, cultural, sport, religious, and service to the community activities and others.

Retention

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

1. Pass the courses of the Program with a grade of B or above.
2. Maintain an overall grade point index of at least 3.50.
3. Continue in and pass 100% of the academic load in which they are registered.
4. Approve at least six (6) credits per year in Program courses, unless these have not been offered.
5. Complete the Evaluation of Participation by Term form and present documentation showing their participation in co-curricular and student development activities in the interview for renewal of the scholarship.
6. 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 academic affairs for approval. Authorization to continue in the Program as an exception does not necessarily include the student's eligibility to receive the economic incentive.

Academic Privileges

Students of the Honors Program will have the benefit of the academic privileges enumerated below.

1. An economic incentive of the Honors Program for the tuition payment related to the requirements of the degree to which they aspire, and in accord with the incentive level they are eligible for.
2. 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. Learning experiences such as: individual research, portfolios, seminars, special topics, educational cooperation, experimental courses and special projects.
4. An indication on their official transcript that they belonged to the Program.
5. Preferred treatment in the registration process.
6. A special identification as Honors Program students.
7. Recognition at graduation, achievement night and at other activities in which academic performance is recognized.
8. The same benefits as graduate students in regard to their use of the Information Access Center.
9. An invitation to special academic activities of the campus and, as far as possible, of the University.
10. An invitation to participate in the Program of study trips, internships and in activities of academic development promoted by the academic units and the Vice Presidency for Academic and Student Affairs and Systemic Planning.
11. When students graduate from the University, an annotation will appear in their academic file indicating a distinguished graduation for having belonged to the Honors Program.

Curriculum

1. The Honors Program offers students multidisciplinary studies among the following curricular alternatives:
 - a. To take the General Education, major, specialization and elective courses that are offered under this Program.
 - b. 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.
 - c. To take courses leading to a minor in honor multidisciplinary studies, by campus.

2. Honors Program courses will be offered in separate sections identified and 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 of their bachelor's degree 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 economic incentive.
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 the degree they are pursuing. For this purpose, the mechanisms of validation, course substitution or official authorization will be used, as may be appropriate.
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 enroll in the sections reserved for this Program if they qualify for the course. However, they must have prior authorization of the coordinator/director of the Program or of the Department Director.

Description of the economic incentive

The economic incentive of the Honors Program is awarded in agreement with the following levels:

1. Freshman students:

Level I **Basic Incentive:** for eligible candidates who have an admissions index of 1,300 to 1,349.

Level II **Superior Incentive:** for eligible candidates who have an admissions index of 1,350 to 1,399.

Level III **Extraordinary Incentive:** for eligible candidates who have an admissions index of 1,400 to 1,600.

2. Sophomore and Junior students:

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

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

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

3. The amount of the economic incentive in each level is as follows:

Level I **Basic Incentive:** tuition payment for three (3) credits of an Honors Program course, in the academic terms indicated.

Level II **Superior Incentive:** payment of six (6) credits in a registration of at least 12 credits, which includes an Honors Program course.

Level III **Extraordinary Incentive:** payment up to a maximum of 12 credits of the registration, which must include an Honors Program course.

To retain eligibility for the economic incentive, students must maintain the grade index established for the incentive level they are in.

The evaluation for the eligibility of each student to continue in the incentive level will be conducted at the end of each term of the academic year by the coordinator/director of the Program. The academic year is divided into two 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 six (6) years.

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 individualized 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 have 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 “Pruebas de Evaluación y Admisión Universitaria (PEAU)” 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 PEAU.
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.

Online 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.

Online 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 asynchronous 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 Online Learning Programs

The admission requirements for students interested in undergraduate studies totally through online 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 online 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 Online 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 Online Learning

Online 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 that 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, such as interactive videoconference and online courses. In addition, it offers the option of combined study 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.

Online Courses

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.

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 online 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 online learning 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 online learning. This Center promotes faculty competence and interactive online 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

Information related to registration fees, fees and other charges is published in the Costs Bulletins, which are available in the "Documents" section of the University portal, which can be accessed through www.inter.edu or <http://documentos.inter.edu/>.

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

1. Students who officially withdraw: To determine the applicable percentage the last date of withdrawal up to 60% of the term will be used.
2. 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.
3. Students who never attended class: One hundred percent (100%) will be refunded

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.

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

Military service personnel, veterans and other qualified individuals may use their Veterans' benefits under the applicable legislation. Information on these programs may be obtained from the Department of Veterans Affairs' Website or in 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 are not eligible for the Federal Pell Grant, Federal Supplemental Educational Opportunity Grant (FSEOG) and some state programs although they have not requested graduation.

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 also accumulate time for transferred credits.

Eligibility for the Federal Pell Grant expires when students complete the academic requirements for a first bachelor's degree.

Upon finishing the second year of study, students must maintain a minimum grade point index of 1.50 as a requirement to receive federal financial aid.

Students will have 6 years registered full-time or 600% of the eligibility time for the Federal Pell Grant to complete the requirements of their study program. The time already used in any eligible institution counts to determine the eligibility of the **Life Time Eligibility Used** of the Federal PELL Grant.

The maximum time of eligibility to receive the Subsidized Direct Federal Loan will be equal to 150% of the duration of the study program in which students are registered. The 150% is also accumulated by previous programs for which payment of the subsidized loan was received.

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). Students may request this by Internet www.fafsa.ed.gov.

In order to submit the request, students must:

1. Students, from their home or in the campus of their preference, will request the FSA ID. This is the password that will allow them to process the request for Federal Financial Aid FAFSA. To acquire this identification they must enter the Internet page WWW.FSAID.GOV <https://fafsa.ed.gov/> or through the page FSA ID and select the link FSA ID.
2. After acquiring their identification, students will complete the request for Federal Financial aid FAFSA through the Internet page <https://fafsa.ed.gov/>. During the process they will select the code of the campus of Inter American University in which they will study. The University will electronically receive the information on the eligibility of the applicant, produce the Institutional Student Information Record (ISIR) and will communicate with the applicant. This form is advantageous because the process is made agile, errors are avoided and the applicant does not have to wait for the mail. Normally the answer is received in Inter American University within 72 work hours after having transmitted the request. In this manner the process is made agile because:
 - a. The Free Request for Student Federal Aid is available by Internet and can be completed from the comfort of the home.
 - b. It is not necessary to wait for the mail.
 - c. If the request is not approved or if information in the approval process was assumed, the Director of Financial Aid is prepared to help and can communicate with the student. The Office of Financial Aid corrects the error in electronic form.
 - d. If the request is approved, when the students select courses for registration, the letter offering aid is prepared.
 - e. The process of registration payment is faster. In fact it can be by mail.
3. Upon receiving the answer of the request for federal financial aid, the system automatically determines the amount for which the participants will receive considering the Educational Cost, the Academic Load and the Family Contribution expected.

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.

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.

If students are dependent students who have not graduated or independent students who have not graduated, they can borrow up to:

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

Nursing Student Loan

Inter American University participates in several federal loan programs related to health. Among these are the nursing loans. To be eligible it is necessary to be registered in the Nursing Program and to sign a promise of payment and other documents. The participant will begin to pay the loan and interests at six (6) percent after nine (9) months of having stopped studying with a minimum academic load of six (6) credits. To maintain the eligibility to these programs, students must remain registered with a full-time academic load. Not all campuses participate in this loan.

This loan offers the benefits of payment cancellation and postponement to eligible students.

Federal Work-Study Program (FWS)

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 of Puerto Rico 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, the Scholarship Programs for new students with a high school grade point average of at least 3.00, and PROGRESAH, a program for honor students in their third or 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

The University designates an amount of institutional funds every year in order to grant scholarships to students with economic needs. Those funds are also used to take care of exceptional student situations. The availability of these funds depends on the budget adopted annually for those purposes.

Institutional Scholarship

The Institutional Scholarship is granted to eligible students who have economic need, as determined by the University.

Institutional Work-Study Program

Employment is assigned to the participants, for which they will receive a wage that will allow them to pay part of their educational expenses. Insofar as possible, the work assigned to students will be related to their field of studies.

Scholarships Granted in the Campuses

Student Activities Scholarship

This scholarship is administered by the Student Council of each campus. It is aimed to take care of special needs. The funds for this scholarship come from funds raised from activities carried out by the Student Council.

Choir, Tuna, Theater and Band Scholarship

This scholarship provides stipends to students participating in any of these extracurricular activities. This will depend on the availability of funds.

Special Fund Scholarship

This special fund aims to take care of the economic need of students who have depleted their eligibility for the Federal PELL Grant and who still have a semester or trimester to complete the requirements of their program.

Incentives of the Honors Program

Students belonging to the Honors Program qualify to receive an economic incentive, based on their academic performance and subject to the availability of funds of this program in each campus. The amount of the incentive awarded is to cover the partial or total cost of the credits in which the student is registered, and depends on the level to which the student belongs. The three established levels are described in the section of the Honors Program of this Catalog.

Engineering Scholarship

The Bayamón Campus has a special scholarship fund for engineering students. This is known as the Honor Engineering Scholarship and has the objective of recruiting new talented students to the Bayamón Campus. The School of Engineering of the Campus can provide information on the eligibility requirements of this Scholarship.

Athletic Scholarships

Inter American University assigns funds annually to offer athletic scholarships to eligible students who stand out in their abilities in sports. Institutional financial aid may be used to pay for studies and other expenses as provided by the Interuniversity Athletic League (LAI) regulations, and to the extent to which the economic resources permit.

Student athletes who, in addition qualify to receive federal or state financial aid, must meet the current requirements and regulations to receive this aid.

Student athletes recruited by the athletic department of IAU must meet the following requirements to receive financial aid for their participation in athletic activities:

1. Be full-time students of Inter American University.
2. Be recruited or recommended by a member of the team of trainers, in harmony with the required minimum mark or level of achievement established by the Institutional Athletic Director, in consultation with the coordinators in the academic units.
3. Comply with the satisfactory academic progress norms, as established by the institutional norm of IAU and by the regulations of the LAI.
4. Accept the financial aid that is offered.

Scholarships Granted by the Vice-presidency for Academic Affairs

Scholarship for Participation in Co-curricular and Extracurricular Activities

Annually, the Vice-presidency for Academic and Student Affairs and Systemic Planning (VASASP) grants student scholarships for participation in co-curricular and extracurricular activities. The objective is to foment student participation in seminars, congresses, lectures and co-curricular projects (associations, artistic groups and institutional teams, among others). This financial aid will cover expenses of air and ground transportation, lodging and diets. Nevertheless, personal expenses, educational equipment and materials may not be paid for with these funds. The scholarships that are granted will be subject to the funds available annually in the VASASP.

Scholarship for Projects of Internationalization and Exchanges

The Vice-presidency for Academic and Student Affairs and Systemic Planning (VASASP) grants scholarships for internationalization and exchange projects. The objective of these is to partially finance development academic-professional projects, such as internships, leadership studies and student initiatives offered outside Puerto Rico. These scholarships are awarded to both undergraduate and graduate level students.

Academic Scholarship

The Vice-presidency for Academic and Student Affairs and Systemic Planning (VASASP) grants the Academic Scholarship to provide partial financial aid to ex-students of Inter American University of Puerto Rico (IAUPR) with high academic achievement. The objective of this scholarship is to help students who aspire to complete graduate studies or professional studies in masters or doctoral level programs offered at IAUPR.

The financial aid must be used to cover part with the costs of registration of the graduate courses in which the student registers. The scholarship establishes a minimum of **\$1,000** and a maximum of **\$1,400** annually, payable in two installments. The amount of the scholarship granted will depend on the available funds.

Presidential Scholarship

This scholarship is administered by the Office of the President and is used to take care of worthy cases with extreme economic needs. The eligibility criteria are established by the Office of the President. Each case is evaluated individually by the president.

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, Program Changes and Partial Withdrawal

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/MM/YYYY (day, month, year).
4. All students, who have not attended class or participated in an academic activity related to the course during the first weeks of class, according to the stipulated date in the appropriate academic administrative calendar, will receive, from the professor, the administrative annotation AW. (Refer to the section Class Attendance of this Catalog).

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 Academic Affairs 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, the major, the submajors, the minor concentrations with their respective and relevant course requirements.

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 \$6.00.

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

At the moment of registration it is required that students submit their mailing address to the Office of the registrar. If a change of address is required, students must visit this office or they will make the change by using the self-service of BANNER (Inter Web). If they do not maintain this address updated, the University will not be responsible for the notifications sent to the students.

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

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 and in online learning courses. Class attendance is defined as the presence of the student by means of an official communication with the professor, as has been determined, to carry out an academic activity related with the course. 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 during the period established in the academic calendar, have never attended a course, will be dropped administratively. This includes courses offered by nontraditional modalities. The professor will identify in final grade in the electronic registry, the students who have never attended or participated in an activity academically related to the course. The annotation AW will be used to identify these students. For administrative purposes, these administrative drops will be considered the same as withdrawals requested by the student, as established in the Adjustments and the Reimbursements section. Inter American University requires its faculty to report the last day of attendance, or of any other course-related activity of students who stop attending 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 access the list of students in their courses in Inter Web and will assign UW to every student that has stopped attending class and will write the date of the student's last day of attendance or his last academic activity of the course, without having withdrawn officially, see the section of Administrative Action Symbols, UW.

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 academic affairs, 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

All students may choose to declare at least one minor or a maximum of two in an area of their interest if they so wish and these will be certified as such. These minors will require the approval of the Academic Adviser and the directors of the concerned departments. Students must complete the requirements of the minor, before or at the same time in which they will complete the requirements of the degree. This declaration of a minor must be made prior to the graduation request.

A minor will consist of a minimum of 18 and a maximum of 27 credits, according to the corresponding academic program. Student can opt for a minor that 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 in agreement with the curricular sequence of the corresponding academic program and the academic norms of this Catalog.

Minors may include courses of the major and they may not have hidden requirements. 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 the corresponding certification. Students must make sure they meet the satisfactory academic progress norms, the retention norm, if applicable, and the maximum time allowed for completing their program.

If students wish that the minor appears certified in their transcript, they must have to formally choose this, by submitting the appropriate form, in one of the campuses authorized to offer the degree. Students must take at least one course in the campus that certifies the minor.

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.

Official Total Withdrawal from the University

Students who decide to totally withdraw from the University must report to a professional advisor, who will orient them on the process. The student will have to fill out the Form of Official Total Withdrawal and sign it on the date in which they wish to initiate the process.

Then, they must secure the endorsements of the financial aid officer and the bursar and, finally, submit the Form to the Office of the Registrar so that the official total withdrawal is processed in the system. The date of effectiveness of the total withdrawal will be the date on which the student initiated the process.

Online students will have to communicate with the professional advisor, by means of e-mail, to inform their decision to totally withdraw from the University. They will have to indicate their student number, their complete name and the academic term from which they wish to withdraw.

The professional advisor will fill out the form with the information provided by the student and will submit it, along with the copy of the received e-mail, to the Management of Registration Services. The date of effectiveness of the total withdrawal will be the date on which the student sent the e-mail.

Student Course Load

A regular or full-time course load is 12-18 credit hours per term, whether these are semester, trimester or bimester. Students may not take more than 18 credit hours per term, unless their overall grade point index is 3.00 or higher. In order to take more than the number of credits permitted, students must have the written consent of their advisor and of the dean of academic affairs of their campus. Students on academic probation because of an unsatisfactory grade point index are limited to a program of 12 credit hours per term.

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

In harmony with the score obtained by students in each course they take, Inter American University of Puerto Rico normally uses the following scale to award their grades:

Score	Grade
100-90	A
89-80	B
79-70	C
69-60	D
59-0	F

There are other grading scales for certain academic programs and for certain courses.

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 academic achievement; 4 honor points per credit hour.
- B-** Above average academic achievement; 3 honor points per credit hour.
- C-** Average academic achievement; 2 honor points per credit hour.
- D-** Deficiency in academic achievement; 1 honor point per credit hour.
- F-** Failure in academic achievement; 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, in writing, to the course instructor, with a copy to the proper department chairman. This faculty member will be responsible for discussing the evaluations with the student and if necessary will submit an amendment to the student's final grade according to the process established by the Institution.

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, no later than the dates established in the academic-administrative calendar, that the registered student never attended the course or any related academic activity. The courses to which the annotation AW is assigned will not form part of the academic record of the student
- MW-** Symbol used to indicate total withdrawal for military reasons.
- I-** Incomplete: When students have not completed a course requirement and the professor determines that there are valid reasons for it, the symbol "I" (Incomplete) may be assigned. 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 professor will have five workdays after the date for the removal of incompletes, as established in the academic-administrative calendar of the corresponding term, to inform the student's grade to the director of the department. 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 norm will apply whether or not the student enrolls the following semester.
The School of Law and School of Optometry will adjust this norm to their respective needs.
- UW-** Assigned in the electronic registry on the date to inform the grades, as established in the academic administrative calendar, when the student:
1. Has stopped attending classes for at least three consecutive weeks in a semester or its equivalent in other academic terms, without presenting a justification to the professor or dean of students, with the exception of those students with veterans' benefits, who will be assigned the action symbol immediately when they stop attending class for two weeks or more, or the equivalent of this in other academic terms.
 2. Has not participated in any academic activity related to the course (including the final examination) after the time period established in number one above.
 3. Does not qualify for the grade of incomplete or (F).
- When the annotation UW is given, the professor will inform the last date of attendance or participation in an academic activity related to the course.
This annotation will form part of the academic record of the student.
- AU-** Symbol used to indicate on student transcripts that the course was audited. No honor points or University credits are awarded.
- 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.

Veterans Services

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

Academic Recognitions

Dean of Academic Affairs' List

Announcement is made at the beginning of the academic year by the dean of academic affairs 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.

To consider students to be included in the Dean of Academic Affairs' List:

1. 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. 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 Academic Affairs who will then notify the students that have attained the distinction of appearing on the Dean of Academic Affairs' List.

The student transcript will reflect the academic years in which the student was on the Dean of Academic Affairs' 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. To consider students to be included in the Chancellor's List:
2. 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.
3. Students must have passed at least twenty-four (24) credits during the previous academic year.
4. The Registrar will submit the list to the Chancellor who will then notify the students that have attained the distinction of appearing on the Chancellor's List.

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. They must 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 campus has an Information Access Center (IAC) with properly capable human resources, educational resources and appropriate physical spaces.

These Centers are organized as a system that works in co-ordination. An online catalog provides access to all bibliographical resources that the Institution owns, as well as to audio-visual materials, printed magazines and electronic books available for study and research.

The Information Access Centers provide remote access to the electronic data bases that the Institution subscribes to, and those prepared internally, and to others of scientific interest that are available free of charge.

Each Information Access Center is considered an integral part of the development of the library programs of the University, among which the development of information and research skills stands out.

The System has a collection that exceeds a million printed and non-printed items, such as printed and electronic books, educative data bases of academic magazines, educational videos, microfiches and microfilms.

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 meet 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 Academic Affairs.
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 Academic Affairs.
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. Experimental courses must be authorized by the director of the department, dean of faculty, if applicable, and by the dean of academic affairs.
3. After an experimental course has been offered for two academic years, the course must be evaluated by the department, the dean of faculty, if applicable, and by the dean of academic affairs.
4. If the recommendation is favorable to incorporate the course as regular one, a resolution to this effect will be sent to the Academic Senate.
5. 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 Academic Affairs. 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. Students will give their portfolio application to the director of the department to which the course or courses, for which they are requesting conformation, belong. They must include with their request a copy of the transcript to avoid the confirmation of learning to which credits have been granted previously.
2. The department director will appoint a professor to evaluate the request and to orient the student on the process and the criteria that will be used in the evaluation of his learning. Using the syllabus or syllabi of the course, the professor will determine if the student is a candidate for this modality.
3. If the student qualifies for this modality, he will pay a fee equivalent to 50% of the regular cost of each course, for the evaluation of the portfolio (according to the credits).
4. After presenting evidence of payment to the department director, the director will designate a professor as mentor and evaluator of the portfolio. The student will be given a copy of *Institutional Guía: The confirmation of learning experiences by means of the portfolio*. The payment for this request will not be reimbursed to the student.
5. The student will prepare and organize his portfolio together with the designated professor, who will determine which documents must be presented and the techniques that will be used to demonstrate the student's learning by using the *Portfolio Evaluation Instrument*.
6. During the evaluation process, the professor will make recommendations to the student, in agreement with the dates established for their meetings.
7. The student will turn in his portfolio in digital format in CD, no later than the last day of classes of the term for which he is registered.
8. The professor will use the *Portfolio Evaluation Instrument* to make his evaluation uniform and objective.
9. The professor will submit the results of his evaluation to the department director, who will endorse the confirmation and send it to the Office of the Registrar, for the appropriate official action.

10. When the evaluation of the portfolio is unfavorable, the professor, or in his absence, the department director, will inform the student the reasons for this decision.
11. The grade the student will receive will be P (passed) or NP (not passed).

International Student Mobility Program (ISMP)

Inter American University, in agreement with its commitment to increase projects related to globalization and internationalization, provides students with opportunities to participate in curricular and co-curricular experiences outside Puerto Rico in the following categories:

- Studies outside Puerto Rico (*Study Abroad - SA*) that take place under the provisions of the current collaborative agreements included in the University's list of active consortia.
- Non-academic Internships
- Academic and professional leadership development activities.

The Vice-presidency for Academic and Student Affairs and Systemic Planning informs the deans of academic affairs of the opportunities for international student mobility each year. These vary in harmony with the consortia established by the University. The list of active consortia is updated and published each year in the Website inter.edu.

Academic Requirements to Request Participation in the ISMP

Any student interested in participating in any of the student mobility opportunities must meet the following requirements:

1. be an active, full-time student of Inter American University,
2. have a minimum general academic index of 3.0 in the University, or have the index required by the specific project or program for which he is applying,
3. have approved at least 30 credits of his undergraduate studies or will complete these upon completion of the term in which he applies , or be studying in at least his first year of studies at the graduate level,
4. show evidence of participation in extracurricular activities and communitarian service during his university life,
5. be recommended by a professor of his study program,
6. be interviewed and favorably evaluated by the Official Liaison or Coordinator of the ISMP of his academic unit, and
7. have the endorsement of the Chief Executive of the academic unit.

A student selected to participate in the ISMP must:

1. Master the language of the country where the host institution is located.
2. Know and comply with the laws of the country visited, and the regulations of the host institution.
3. Demonstrate that he has available to him the financial resources to cover the educational costs.
4. Sign a release of responsibility.
5. Have a health insurance plan that covers the service costs in the country visited.
6. Register in the courses or program, after consulting with the director of the Academic Program he is studying.
7. Inform previously any change, that he desires to make in the courses or the program in which it has registered, to the Coordinator of the ISMP.
8. Totally complete the program or the courses in which he has registered.
9. Meet the evaluation criteria of the host institution.
10. Make the necessary arrangements to obtain the transcript of credits upon completing the program and give the grade report to the Coordinator of the ISMP, who will transmit it to the registrar, in a period not greater than six months.

Academic load, grades assigned and the granting of credits by Inter American University for courses taken in other institutions

Before registering in a course in a host institution, the student must have the authorization of the registrar, who will determine the course equivalency in consultation with the director of the Academic Program. The student's academic load will be determined in agreement with the criteria used at the host institution for these purposes.

The grade obtained in the host institution will be converted to the grading system of Inter American University. This will be considered to determine: the general academic index, the study program index, the credits attempted, the credits approved, the tempo of approval and the maximum period of eligibility. The grades informed under this experience may not be changed.

Federal and State Financial Aid

A student eligible for federal or state financial aid may receive this in an institution outside Puerto Rico, as long as this has been established in the consortium with the host institution. The ISMP Coordinator and the director of Financial Aid will provide information for each individual case.

Satisfactory Academic Progress Norm: Undergraduate Programs

Inter American University requires that all students demonstrate satisfactory academic progress throughout their study program. The attainment of satisfactory academic progress is related to eligibility to receive federal, state and institutional financial aid.

- The University will evaluate student satisfactory academic progress at the end of the academic year in June. The evaluation will include all the terms that the student has attended.
- New students (both regular and transfer) will be evaluated for the first time when they complete their first academic year of studies. After this first evaluation, these students will be evaluated together with the rest of the student population, once per year, at the end of each academic year in June.
- For students classified in academic probation, the progress will be measured at the end of each academic term until the student achieves satisfactory academic progress.
- The maximum period of eligibility will be evaluated in all terms and all credits attempted in the Institution and transfer credits will be considered.

The University will notify the student, by means of letter or e-mail, his academic status and his eligibility to receive federal and state financial aid.

Requirements to achieve satisfactory academic progress

The requirements to attain satisfactory academic progress are divided into two components: qualitative and quantitative.

Qualitative Component

The student will fulfill the qualitative component, if he attains the required academic index in his study program. This index increases progressively in accord with the percentage of credits approved. The academic index that a student must achieve if he is studying an associate or a bachelor's degree is indicated in the tables below.

Table 1. Academic index required in the associate degree programs whose required graduation average is 2.00.

Percent (%) of credits approved	Progressive academic index
0-20	1.50
21-50	1.80
51-75	1.95
76-100	2.00

Table 2. Academic index required in the bachelor's level study programs of 111-127 credits and whose required graduation average is 2.00.

Percent (%) of credits approved	Progressive academic index
0-30	1.50
31-60	1.75
61-80	1.90
81-100	2.00

Table 3. Academic index required in the bachelor's level study programs of 128-150 credits and whose required graduation average is 2.00.

Percent (%) of credits approved	Progressive academic index
0-25	1.50
26-50	1.75
51-75	1.90
76-100	2.00

Table 4. Academic index required in the bachelor's level study programs whose required graduation average is 2.20.

Percent (%) of credits approved	Progressive academic index
0-25	1.70
26-50	1.95
51-75	2.10
76-100	2.20

Table 5. Academic index required in the bachelor's level study programs whose required graduation average is 2.30.

Percent (%) of credits approved	Progressive academic index
0-25	1.80
26-50	2.05
51-75	2.20
76-100	2.30

Table 6. Academic index required in the bachelor's level study programs whose required graduation average is 2.50.

Percent (%) of credits approved	Progressive academic index
0-25	2.00
26-50	2.25
51-75	2.40
76-100	2.50

Table 7. Academic index required in the Teacher Education Programs of 121 to 128 credits (year of graduation 2011-2013).

Percent (%) of credits approved	Progressive academic index
0-36	2.30
37-55	2.55
56-74	2.70
75-100	2.80

Table 8. Academic index required in the Teacher Education Programs of 129 to 137 credits (year of graduation 2011-2013).

Percent (%) of credits approved	Progressive academic index
0-34	2.30
35-52	2.55
53-69	2.70
76-100	2.80

Table 9. Academic index required in the Teacher Education Programs of 138-147 credits (year of graduation 2011-2013).

Percent (%) of credits approved	Progressive academic index
0-32	2.30
33-48	2.55
49-64	2.70
65-100	2.80

Table 10. Academic index required in the Teacher Education Programs of 121 to 128 credits (year of graduation 2013 - 2014 and above).

Percent (%) of credits approved	Progressive academic index
0-36	2.50
37-55	2.75
56-74	2.90
75-100	3.00

Table 11. Academic index required in the Teacher Education Programs of 129 to 137 credits (year of graduation 2013 - 2014 and above).

Percent (%) of credits approved	Progressive academic index
0-34	2.50
35-52	2.75
53-69	2.90
76-100	3.00

Table 12. Academic index required in the Teacher Education Programs of 138-147 credits (year of graduation 2013 - 2014 and above).

Percent (%) of credits approved	Progressive academic index
0-32	2.50
33-48	2.75
49-64	2.90
65-100	3.00

The progressive academic index ***will not apply to the engineering programs***. Students studying a bachelor's program in this discipline must maintain an academic index of 2.00 points. Students registered in a study program that has academic exigencies greater than those previously described, must fulfill those requirements to remain in the program.

The student taking a study program of more than two years duration, must achieve a minimum general academic index of 1.50 when completing his second academic year; that is to say, when the student has attempted courses in four semesters, six trimesters or eight bimesters, as either a part-time or full-time student.

Quantitative Component

In order to comply with the quantitative component, the student must:

- a. approve at the end of every academic year, upon the closing of the term that finishes in June, 50%, 60% or the 66.67% of the total of the credits attempted in the study program, in harmony with the interval of the level of studies indicated in the table. This will be determined by means of the following calculation: the total of credits attempted in the study program divided by the maximum period of eligibility of the study program in credit-hours.

Interval of the level of studies	% of credits attempted in the study program	Accumulated tempo of approval required
1	1-25	50%
2	26-50	60%
3	51-100	66.67%

- b. complete the study program requirements in no more than 150% of the time (measured in credit-hours).

Maximum Period of eligibility

This is the maximum time measured in credit-hours during which a student can attempt courses, and which is not greater than 150% of the duration of the study program. The student will retain his eligibility for federal and state funds while he does not exceed this period. The student who does not complete his study program within the established maximum time in the applicable federal or state regulations and who, therefore, does not obtain satisfactory academic progress, will not be able to continue studies with financial aid, be it federal or state aid. When the student exceeds the limits indicated in this document, the dean of academic affairs or his representative will evaluate each case in order to determine if the student can continue his studies without financial aid.

First academic probation and loss of eligibility for financial aid

All students who do not manage to achieve satisfactory academic progress will be classified as in first academic probation, during the next academic term in which they register.

All students who receive federal and state financial aid and ***do not comply with the required qualitative or quantitative component*** and therefore ***do not manage to achieve satisfactory academic progress, will lose the eligibility to receive these aids*** during the following academic term in which they register.

Preparation of the Academic Agreement for overcoming the academic probation and the appeal process for the loss of eligibility for financial aid

All students in academic probation must make, along with the academic adviser or a professional adviser, an **Academic Agreement**, which will allow them to achieve satisfactory academic progress within the next two (2) semesters, three (3) trimesters or four (4) bimesters. In those cases that merit it, academic agreements with a greater duration may be made.

As part of the **Academic Agreement** the student will give priority, but without limiting it, to (1) repeating and approving those courses that he has failed (F), abandoned (UW) or in which he has not obtained the grade required for the courses of his program, (2) approving no less than 66.67% of the credits attempted upon completing each academic term, and (3) obtaining an academic index of 2.00 upon finishing the term.

The student interested in appealing the loss of his eligibility to receive financial aid must submit the completed **Appeal Request** to the dean of academic affairs or the person that the dean designates, after having received the notification of his loss of eligibility. The Appeal Request must be submitted together with the Academic Agreement.

The student must base his appeal on a worthy cause. Among the justified causes to request an appeal are the following, without being limited to them:

1. the suffering of a serious and severe illness,
2. the death of a member of the familiar nucleus,
3. the death of the spouse or
4. a military assignment.

In addition, the applicant should indicate how his circumstances have changed at the time of presenting the appeal, so that they will allow him to achieve satisfactory academic progress.

The student's request will be referred to the **Appeals Committee**, a work group designated by the chief executive officer comprised of the dean of academic affairs or his representative, the dean of students or his representative and a professional adviser. The director of financial aid or his representative will form part of the committee in case it is necessary to evaluate the eligibility to receive federal and state financial aid and probationary periods of financial aid may be granted. This committee will deal with the appeal requests to restore federal and state financial aids or the appeal requests from academic suspensions. When evaluating the request, the **Appeals Committee will consider if the student can attain the required academic progress upon completion of the next academic term in which he registers or when completing the Academic Agreement.**

If the committee concludes that the student will be able to attain satisfactory academic progress during the next academic term in which he registers or will be able to reasonably fulfill the provisions of the Academic Agreement, it will approve the appeal, and the student will be granted a **financial aid probationary status** during the next academic term in which he registers or while he continues to reasonably comply with the provisions of the Academic Agreement. A student can be in academic probation during one (1) academic year and the summer, unless it has been established in the Academic Agreement that the student will require more time to attain satisfactory academic progress. At the conclusion of each term, the student must reasonably comply with the provisions of the Academic Agreement in order to retain his eligibility to receive federal or state financial aid.

Evaluation of students under Academic Probation upon the conclusion of each term

If, upon the conclusion of one of the terms under the financial aid probationary period and the academic probationary period, the student manages to attain satisfactory academic progress, he will be considered in compliance with the academic progress norm and it will be considered that he complied with the provisions of the Academic Agreement.

If, upon the conclusion of one of the terms under the financial aid probationary period and the academic probationary period, the student does not manage to attain satisfactory academic progress, but has complied with the provisions of the Academic Agreement for said term, the student will retain his academic probationary classification and the financial aid probationary one.

If, upon the conclusion of one of the terms under the financial aid probationary period and the academic probationary period, the student does not manage to attain satisfactory academic progress and has not complied with the provisions of the Academic Agreement, he will be suspended academically during six months.

First academic suspension and the appeal process of the academic suspension

If, upon the conclusion of the time limit to comply with the terms of the Academic Agreement in his first academic probation, the student does not manage to attain satisfactory academic progress, **he will be academically suspended during a period of six (6) months.** In this period all the applicable academic terms will be included. The dean of academic affairs will notify the student of the decision by means of a letter or e-mail, a copy of which will be included in the student's academic file.

A student interested in appealing the suspension must present the **Appeal Application**, in writing or by means of e-mail, to the dean of academic affairs or the person that the dean designates, after having received the suspension notification. The request will be referred to the appeals committee. When evaluating the request, the appeals committee will consider if the student will be able to attain satisfactory academic progress by the end of the next academic year. The dean of academic affairs will notify the student of the decision by means of a letter or e-mail, a copy of which will be included in the student's academic file.

If the committee concludes that there are merits in the request of the student, he will be allowed to continue studies, under the condition of a **second academic probation**. The permission to continue studying under the condition of a second academic probation does not imply that the student is eligible to receive federal or state funds. On the contrary, the student must attain satisfactory academic progress and if he complies with the criteria established by the federal regulations, he may appeal to have his eligibility to receive federal and state financial aids restored. If the committee does not consider the appeal of the suspension favorably, the student will remain suspended during six (6) months, after which he may resume his studies, under the condition of a **second academic probation**.

If, upon the conclusion of the period of the second academic probation, the student manages to attain satisfactory academic progress, it will be considered that he is in compliance with the academic progress norm. Otherwise, **he will be academically suspended for the second time**.

Second academic suspension

A student suspended for the second time for academic deficiency, will remain in that classification for one (1) academic year and this decision may not be appealed. Once this period of suspension is ended, the student may request readmission and if the dean of academic affairs or his representative concludes that there is the possibility that the student may attain satisfactory academic progress, in the period of one (1) academic year, he may be re-admitted under the classification of a **third academic probation**. A student re-admitted after a second academic suspension is not eligible to receive federal or state funds.

All students re-admitted under the previous classification, must meet the satisfactory academic progress requirements in order to recover their eligibility to receive federal and state financial aid. In case a student does not attain satisfactory academic progress under the classification of third academic probation, he will be suspended for the third occasion and may not appeal this decision.

Other provisions related to Satisfactory Academic Progress

1. The University will not accept as transfer credit any course that a student approves in another institution during the time in which he was suspended.
2. The student **should declare the major study program of his interest, and he will be able to change it, after consulting with the academic adviser**. When a student changes his major study program, the credits attempted for the previous study program will not be considered to determine the program grade point index and the required tempo of approval to comply with the satisfactory academic progress norm, except when these credits form part of the requirements of the new study program selected. Nevertheless, the credits attempted in the previous study program will be considered to determine the time remaining in the maximum period of eligibility for financial aid in the new study program.
3. In case a student is authorized to change his study program major, after having been classified with academic probationary status, he will maintain this status in his file during the next academic term in which he registers. Nevertheless, when he is evaluated again, only the credits applicable to the new study program will be considered.
4. The student, who receives financial aid probation and is subject to comply with the provisions of the Academic Agreement, **may not change his study program major nor change the level**.
5. The courses of a study program may be paid with federal, state and institutional funds while the student stays in his original program or after making a properly authorized and registered change of study program.
6. All students may opt for a minor that is within their baccalaureate program. For a minor that is not within his baccalaureate program, the student must take a minimum of 18 credits and a maximum of 27 credits, in accord with the curricular sequence of the corresponding academic program and the academic norms included in the current General Catalog.
7. In case a student opts for a minor, the courses for this may be paid with federal and state funds, as provided by the applicable regulations. **These credits will be considered to determine the maximum period of eligibility, measured in credit-hours**.

8. A student who officially withdraws (W), abandons the course (UW) or fails it; that is to say, he obtains the grade of "F" or "NP", can repeat that or those courses as many times as necessary and pay for this with federal and state funds. However, ***a student who wants to repeat a course previously approved, may pay for it with federal or state aid only one (1) time.***
9. All repeated courses are considered as attempted credits for the purpose of determining the maximum period measured in credit-hours, and the tempo of approval.
10. Transfer credits (T) are considered as part of the academic file of the student for purposes of establishing the percent of credits of the study program requirements that have been approved, and of determining the maximum time of eligibility to receive federal funds (in credit-hours). Only transfer credits that may be applied to the study program, including the elective credits will be validated. If the student has already approved the elective courses permitted in his program, additional credits will not be validated.
11. The evaluation to determine the academic progress of the student will not consider the courses in which the student has received the annotation of incomplete until this annotation has been removed.
12. After graduating, the transcript of credits will not reflect the student's probationary and suspension periods.
13. A student may not obtain financial aid probation for the same circumstances more than once.

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. 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. In the case of readmitted students, refer to the section Readmission to the University.

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

Note: Students who opt for a second major may not use financial aid from Title 1V to pay for the costs related to it.

Graduation Requirements for Associate Degrees

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

1. Approve the General Education academic requirements and those specified in the program for the Associate Degree for which they are candidates. (See these requirements under Associate Degree Programs).
2. Achieve a minimum overall grade point index of 2.00 or that required by the study program.
3. Complete satisfactorily no less than one-third of all the credits required for the degree at Inter American University.
4. Complete satisfactorily at Inter American University no less than one-third of all course credits required in the major.

Graduation Requirements for Bachelors' Degrees

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

1. Approve the total number of credits required by the study program.
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 for graduation.
4. Achieve an overall grade point index of 2.00 or higher in the major field of study, or that required by the study program.

5. Complete satisfactorily at least 24 credits of those required for the degree at Inter American University.
 - 5.a. When the student transfers from a university accredited by the Middle States Commission on Higher Education or another regional accreditation agency, he must complete satisfactorily at least 12 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)
 - 6.a. When the student transfers from a university accredited by the Middle States Commission on Higher Education or another regional accreditation agency, he must complete satisfactorily at least eight 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.

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 student who considers that there is an error in the evaluation of his application for graduation should report this 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 until the Registrar's office certifies that the student has completed all requirements for the degree.

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

Credit-Hours

The University defines one (1) credit for an academic term, as indicated below:

- 1) 15 hours of presential contact and 30 hours of academic, course related activities, which the student carries out outside the classroom; or their equivalent in academic, online activities
- 2) 15 hours of presential contact in the integrated modality of lecture-lab and a minimum of 30 hours of academic, course related activities, which the student carries out outside the classroom; or their equivalent in academic, online activities
- 3) 30-45 hours in a presential or virtual, closed laboratory
- 4) 45-60 hours of supervised practice

Course Offerings and Scheduling

This Catalog includes the courses that comprise the academic offerings authorized for Inter American University by the Council on Education of Puerto Rico. The curricular sequence of each study program is available in the academic departments and through Internet in the self-services of Banner. Each campus offers the courses in agreement with the curricular sequence of the academic programs that it is authorized to offer and with student demand. However, it is possible that a course cannot be offered in a specific term. In this case, students have the option of taking it in another campus that has it scheduled for the academic term of their interest or they may take an authorized equivalent course. Also, there are academic programs that include a component of “Prescribed Distributive Requirements” that, generally, require the student to select from among a list of courses or options. In these cases, the student will select among those courses that the campus schedules. 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 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.

Institutional Codes, CIP Code, and Program Length

The following table presents the undergraduate programs authorized by the Council of Education of Puerto Rico (CEPR) with the code assigned by the University to identify the academic programs and minors. It also includes the Classification of Instructional Programs or CIP Code, according to the taxonomic scheme of the U.S. Department of Education and the program length in years. The program length is calculated by taking into consideration a complete academic load of 30 credits per academic year with satisfactory academic progress in the study program.

Academic Program	IAUPR Code	CIP Code	Program Length in Years
Associates, Bachelors, and Minors			
Accounting (AAS)	060	52.0301	2
Accounting (BBA)	166	52.0301	5
Minor in Auditing	248		
Minor in Financial Accounting	166F		
Minor in Taxes	166M		
Minor in CPA Track	166G		
Agricultural Technology (AAS)	A452	01.0308	2
Airway Sciences (BS)			
Aviation Sciences Management	152	49.0104	4
Aircraft Systems Management (Professional Pilot)	155	49.0199	4
Minor in Commercial Pilot	151M		
Minor in Air Traffic Control	152T		
Minor in Aviation Management	152M		
Minor in Airway Dispatcher	152A		
Applications Development (BS)	B525	11.0899	5
Biology (BS)	180	26.0101	5
Minor in Bioinformatics	180A		
Minor in Biology	180B		
Minor in Premedical	180P		
Minor in Pre-Veterinary	180V		
Biomedical Sciences (BS)	263	26.0102	4
Biopsychology (BS)	B524	30.1001	5
Biotechnology (AAS)	A451	26.1201	3
Biotechnology (BS)	258	26.1201	5
Minor in Biotechnology	258M		
Business Administration (AAS)	058	52.0201	2
Cardio-Respiratory Care (AAS)	091C	51.0915	3
Chemistry (BS)	132	40.0501	5
Minor in Chemistry	132M		
Communications (AA)	071C	09.0100	2
Communication in Media Production (BS)	280	10.0105	5
Minor in Photography	280M		

Academic Program	IAUPR Code	CIP Code	Program Length in Years
Communications in Public Relations and Advertising (BA)	235	09.0902	4
Computer Science (AAS)	054	11.0701	2
Computer Science (BS)	120	11.0701	5
Minor in Computer Science (Effective 07/2014)	102S		
Minor in Computer Networks	120A		
Minor in Mobile Device Programming	120P		
Computer Technology and Networks (AAS)	A453	47.0104	3
Computer Technology and Networks (BS)	B523	47.0104	5
Computerized Management Information Systems (AAS)	096	52.1201	3
Corporate Communication (BA)	289	52.0501	4
Criminal Investigation (AA)	A251	43.0104	2
Criminal Justice (AA)	095	43.0199	2
Criminal Justice (BA)			
Criminal Investigation	194	43.0104	4
Forensic Investigation	194B	43.0111	4
Minor in Criminal Investigation	194M		
Minor in Forensic Investigation	94BM		
Minor in Penology	194P		
Culinary Arts and Gastronomic Sciences (AA)	A252	12.0509	2
Design (BA)	283	50.0401	4
Design and Development of Video-Games (BS)	285	50.0411	5
Minor in Design and Development of Video-Games	120C		
Digital Graphic Design and Multimedia (BS)	291	50.0409	4
Education (Teacher Education) (BA)			
Early Childhood: Pre-School Level	243	13.1209	4
Early Childhood: Elementary Primary Level (K-3)	236	13.1202	4
Early Childhood: Elementary Primary Level (4-6)	237	13.1202	4
Elementary Education in Special Education	231	13.1015	5
Interdisciplinary Special Education (PK-12)	290	13.1099	4
Secondary Education			
Biology	174	13.1322	5
Chemistry	187	13.1323	5

Academic Program	IAUPR Code	CIP Code	Program Length in Years
History	144	13.1328	5
Mathematics	128	13.1311	5
Social Studies	177	13.1318	4
Spanish	145	13.1330	5
Physical Education			
Adapted Physical Education	207	13.1099	5
Physical Education at the Elementary Level	178	13.1314	5
Physical Education at the Secondary Level	176	13.1314	5
Special Education	136	13.1001	4
Special Education in Autism	277	13.1013	5
Special Education in the Deaf and Partially Deaf	282	13.1003	5
Teaching of English as a Second Language at the Elementary Level	206	13.1401	4
Teaching of English as a Second Language at the Secondary Level	147	13.1401	4
Minor in Religion and Education	088M		
Minor in School Social Work	118A		
Electronic Engineering Technology (AS)	A651	15.0303	3
Electronic Engineering Technology (BS)	B521	15.0303	4
Minor in Electronic Engineering Technology	266M		
Engineering (BS)			
Pre-Engineering	245	14.0101	N/A
Computer Engineering (BS)	272	15.1299	5
Minor in Hardware Systems and Integrated Systems	272M		
Minor in Software Systems	272S		
Electrical Engineering (BS)	216	14.1001	5
Minor in Power and Energy Systems Engineering	216D		
Minor in Systems Engineering Control, Robotics and Automation	216M		
Minor in Communication Systems	216I		
Minor in Electric Systems	216S		
Industrial Engineering (BS)	217	14.3501	5
Minor in Logistics and Operations Research	217A		
Minor in Quality Systems	217B		
Mechanical Engineering (BS)	218	14.1901	5
Minor in Aerospace Engineering	218M		
English (BA)	141	23.0101	4

Academic Program	IAUPR Code	CIP Code	Program Length in Years
Minor in Oral and Written Communication	265A		
Minor in Bilingual Oral and Written Communication	265B		
Entrepreneurial and Management Development (BBA)	275	52.0701	4
Minor in Electronic Commerce	275M		
Minor in Entrepreneurialship	275A		
Minor in Entrepreneurial and Management	275G		
Minor in Music Business Management	063M		
Minor in Public Management	127M		
Environmental Management (BS)	295	03.0104	5
Environmental Sciences (BS)	241	03.0104	5
Minor in Environmental Sciences	241A		
Environmental Technology (BS)	229	15.0599	5
Finance (BBA)	222	52.0801	4
Minor in Finance	222F		
Minor in Insurance	222M		
Fine Arts (BA)			
Ceramics	B811	50.0711	4
Drawing	B812	50.0705	4
Sculpture	B813	50.0709	4
Photography	B814	50.0605	4
Printmaking	B815	50.0710	4
Painting	B816	50.0605	4
Art Education	254	13.1302	5
Forensic Biology	294	26.9999	5
Forensic Informatics (BS)	B002	03.0104	4
Forensic Science (BS)	262	43.0106	4
Minor in Forensic Science	262A		
General Business Administration (BBA)	121	52.0201	4
Graphic Design (AVA)	075	50.0409	2
Graphic Design (BA Fine Arts)	B001	50.0409	4
Health Sciences (BS)			
Administration	255	51.2211	5
Education	260	51.2207	5
History (BA)	109	54.0101	4
Minor in History	109A		
Minor in Puerto Rican History and Literature	109B		
Hotel and Restaurant Management (BBA)	227R	52.0904	5
Human Resources Management (BBA)	214	52.1001	4

Academic Program	IAUPR Code	CIP Code	Program Length in Years
Minor in Human Resources Management	214M		
Humanities Studies (BA)	137	24.0103	4
Industrial Chemistry (BS)	259	40.0599	5
Minor in Industrial Chemistry	259A		
Minor in Chemistry	132M		
Information Technology (BBA)	287	11.0103	5
Institutional Chaplaincy (AA)	088I	39.0701	2
Insurance (A)	062A	52.1701	2
Managerial Economics (BBA)	167	52.0601	4
Marine Sciences (BS)	B522	26.1302	4
Minor in Marine Sciences	180M		
Marketing (BBA)	149	52.1401	4
Minor in Communications and Public Relations	149M		
Minor in Insurance Sales	149C		
Minor in Marketing	149F		
Minor in Sales	149S		
Minor in Sport Marketing	149B		
Mathematics (BA)	111	27.0101	4
Mathematics (BS)	210	27.0101	4
Minor in Mathematics	210M		
Minor in Statistics	111E		
Medical Sonography in Cardiovascular Sonography (BS)	284	51.0901	5
Minor in Musculoskeletal Sonography	273A		
Medical Technology (BS)	165	51.1005	5
Microbiology (BS)	268	26.0502	5
Minor in Microbiology	268M		
Mobile Device Programming (AAS)	A094	11.0299	2
Music (BA)	112	50.0903	4
Music (BM)			
Applied Music	190	50.0903	4
Music Education: General - Vocal	192	13.1312	5
Music Education: Instrumental	191	13.1312	5
Minor in Music	190A		
Music Business Management (A)	063A	50.1003	2
Multidisciplinary Studies (AA)	A253	30.9999	4
Multidisciplinary Studies (BA)	292	30.9999	4
Minor in Multidisciplinary Studies	292A		
Natural Sciences (BS)	293	30.1801	4
Networks and Telecommunications (BS)	269	11.0901	4
Nursing (AAS)	061	51.3901	2
Nursing (BSN)	150	51.3801	4
Minor in Gerontology for Nursing	150M		

Academic Program	IAUPR Code	CIP Code	Program Length in Years
Minor in Management for Nursing	212M		
Occupational Therapy (AS)	061B	51.0803	3
Office Systems Management (AA)	090	52.0204	2
Office Systems Management (BA)	249	52.0204	4
Minor in Office Systems Management	249M		
Minor in Administration of Electronic Medical Records	249R		
Operations Management (BBA)	286	52.0205	4
Minor in Operations Management	286M		
Optical Sciences Technology (AAS)	089	51.1802	3
Pharmacy Technician (AAS)	092	51.0805	3
Photography (A)	097	50.0605	2
Physical Therapist Assistance (AS)	061P	51.0806	3
Police Science (AA)	095P	43.0107	2
Political Science (BA)	114	45.1001	4
Minor in Legal Affairs	114L		
Minor in Political Science	114P		
Minor in Human and Civil Rights	114H		
Minor in Government Management	114N		
Minor in International Relations	114M		
Popular Music (A)	087	50.0903	3
Popular Music (BA)	232	50.0903	4
Minor in Anthropology and History of Music	232A		
Minor in Contemporary Dance Music	232B		
Minor in Sacred Music	232M		
Minor in Scenic Arts	232C		
Psychology (BA)	115	42.0101	4
Minor Intervention and Stabilization of Clients in Crisis Situations	115M		
Radiological Sciences in Computerized Tomography and Magnetic Resonance (BS)	273	51.0911	5
Minor in Musculoskeletal Sonography	273A		
Radiological Technology (AAS)	073	51.0907	3
Radiological Technology in Mammography and Angiography (BS)	274	51.0911	5
Real State (BBA)	288	52.1501	4
Restaurant and Food Services Administration (AAS)	058F	19.0505	2
Sales (AAS)	098	52.1899	2
Social Sciences (BA)	119	45.0101	4
Social Work (BA)	118	44.0701	4
Minor in Gerontology for Social Work	118M		
Spanish (BA)	107	16.0905	4

Academic Program	IAUPR Code	CIP Code	Program Length in Years
Minor in Spanish	107A		
Minor in Oral and Written Communication	107B		
Minor in Bilingual Oral and Written Communication	107C		
Minor in Strategic Languages	107M		
Speech and Language Therapy (BS)	281	51.0203	4
Sports Technology (BA)	189	31.0504	4
Studies in Religion (AA)	088	38.0201	3
Studies in Religion (BA)	239	38.0201	4
Tourism			
Tourist Guide (AAS)	081	52.1905	2
Tourism Management (BBA)	279	52.0903	4
Training and Sports Management (BA)	278	31.0504	4
Veterinary Technician	A454	51.0808	2
Professional Certificates			
Entrepreneurial Development (Professional Post-Associate Certificate)	058A	52.0701	
Medical Technology (Professional Post-Bachelor's Degree)	135	51.1005	
Online Learning: Associates and Bachelors			
Accounting (AAS)	060D	52.0301	2
Business Administration	093	52.0201	2
Computer Science (AAS)	054D	11.0701	2
Computer Science (BS)	120D	11.0701	5
Computerized Management Information Systems (BS)	096D	52.1201	3
Criminal Justice: Criminal Investigation (BA)	194A	43.0104	4
Criminology (BSS)	143D	45.0401	4
Education (Teacher Education) (BA)			
Early Childhood: Pre-School Level	243D	13.1209	4
Early Childhood: Elementary Primary Level (K-3)	236D	13.1202	4
Early Childhood: Elementary Primary Level (4-6)	237D	13.1202	4
Teach English as a Second Language at the Secondary Level	147D	13.1401	4
Special Education	136D	13.1001	4
Secondary Education: Spanish	145D	13.1330	5
School Health	267D	13.1299	4
Entrepreneurial and Management Development (BBA)	275D	52.0701	4
Human Resources Management (BBA)	214A	52.1001	4

Academic Program	IAUPR Code	CIP Code	Program Length in Years
Information Technology (BBA)	287D	11.0103	5
International Business (BBA)	233D	52.1101	5
Mathematics (BA)	111D	27.0101	4
Management and Organizational Innovation (BBA)	253D	52.0201	4
Marketing (BBA)	149A	52.1401	5
Office Systems Management (AA)	090A	52.0204	2
Office Systems Management (BA)	249A	52.0204	4
Operations Management (BBA)	286D	52.0205	4
Psychology (BA)	115D	42.0101	4
Sales (AAS)	098D	52.1899	2
Studies in Religion (AA)	088D	38.0201	3
Studies in Religion (BA)	239D	38.0201	4
Online Learning: Professional Certificates			
Entrepreneurial Development (Professional Post-Associate Certificate)	058D	52.0701	

Subject Codes Used in Catalog and in the System

Subject	Subject Codes
Accounting.....	ACCT
Agricultural Technology.....	APTE
Anthropology	ANTH
Application Development	ADEV
Arabic	ARAB
Archeology	ACHA
Art Education.....	ARED
Auditing	AUDI
Airway Sciences.....	AWSC
Basic Skills: Information and Computing (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
Biopsychology	BIPS
Biotechnology.....	BIOT
Business Administration.....	BADM
Cardio-Respiratory Care	CARD
Chemistry	CHEM
Christian Thought (General Education)	GECF
Communications, Photography and Communication in Media Production.....	COMU
Computer Engineering	COEN
Computer Science.....	COMP
Computer Technology and Networks.....	COTN
Computerized Tomography and Magnetic Resonance	CTMR
Contemporary Dance	DANC
Criminal Justice and Criminal Investigation	CJUS
Criminology	CRIM
Culinary and Gastronomic Sciences	GASC
Design	DSGN
Design and Development of Video-Games.....	GAME
Digital Graphic Design and Multimedia.....	DGDM
Education	EDUC
Educational Computing	ECMP
Educational Cooperation.....	EDCO
Electrical Engineering	ELEN
Electronic Commerce.....	ECOM
Electronic Engineering Technology Technology.....	ELEC
Engineering (General).....	ENGR
English.....	ENGL
Entrepreneurial and Managerial Development	ENTR
Entrepreneurial Culture (General Education).....	GEEC
Entrepreneurial Development	ENDE
Environmental Management	EVMA
Environmental Sciences.....	EVSC
Environmental Technology.....	EVTH
Finance.....	FINA
Fine Arts.....	ARTS
Forensic Science, Forensic Informatics, and Forensic Biology	FORS

French	FREN
Geography.....	GEOG
German	GERM
Gerontology.....	GERO
Health Sciences	HESC
Health, Physical Education and Recreation.....	HPER
Health and Quality of Life (General Education)	GEHP
Historical and Social Context (General Education).....	GEHS
History	HIST
Honors Program.....	HONP
Hotel and Restaurant Management	HRMT
Industrial Engineering	INEN
Industrial Relations.....	INRE
Information Technology.....	ITEC
Institutional Chaplaincy	CHAP
Insurance.....	INSR
International Business.....	INTB
Italian.....	ITAL
Landscape Design	LADE
Latin.....	LATI
Linguistics.....	LING
Management and Organizational Innovation	MGOI
Managerial Economics.....	MAEC
Mandarin	MAND
Marine Sciences.....	MASC
Marketing.....	MKTG
Marketing and Sales	MAMS
Materials Management.....	MMAT
Mathematics.....	MATH
Mechanical Engineering.....	MECN
Medical Sonography	SONO
Medical Technology	MEDT
Microbiology	MICR
Mobile Device Programming	MOPR
Music, Applied Music, and Popular Music	MUSI
Music Business Management	MUBA
Music Education.....	MUED
Natural Sciences	NASC
Networks and Telecommunications	NTEL
Nursing.....	NURS
Occupational Therapy	OCTH
Office Systems Management	OMSY
Optical Sciences Technology.....	OPST
Pharmacy Technician.....	PHAR
Philosophic and Esthetic Thought (General Education)	GEPE
Philosophy.....	PHIL
Physical Therapy Assistant.....	PHTH
Physics.....	PHYS
Political Science	POLS
Portuguese	PORT
Psychology.....	PSYC
Psychosocial Human Services.....	HUSE
Public Administration.....	PUAD
Radiological Technology	RATE
Real Estate.....	REAL
Religion	RELI

Reserve Officers Training Corps: Military Science	MISC
Reserve Officers Training Corps: Aerospace Studies	AEST
Russian	RUSS
Scientific and Technological Context (General Education).....	GEST
Small Business Administration.....	SBAD
Social Work	SOWO
Sociology.....	SOCI
Spanish	SPAN
Speech and Language Therapy.....	SPTH
Recreational and Sports Facilities Management	SRIM
Tourism	TURI
Veterinary Technician	VETC

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

1. The combination 197 is used to identify Special Topics in all disciplines.
2. The combination 291 is used to identify supervised practicums or internships.
3. 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

The university curriculum is composed of three interrelated components, which include general education, specialization, and elective courses, which are aimed to develop a person with the competencies for a diverse and globalized social and labor context.

The Inter American University of Puerto Rico offers a General Education Program that, independent of the study program selected by the student, contributes to the achievement of the following goals and competencies.

Goals and Competencies of the General Education Program

The General Education Program of the Inter American University of Puerto Rico is based on the following goals and competencies. These aim to develop professionals with the knowledge, skills, and attitudes necessary for a diverse and changing society and work environment in the globalized world of the 21st century.

- Goal I:** Develop a person with humanistic sensitivity, capable of contributing to the solution of problems with a collaborative attitude, using research, critical, creative and innovative thinking in an international context.
- Competency 1:* Demonstrate a critical, creative, scientific, humanistic, ethical and aesthetic attitude for the solution of problems, based on the use of research methods, sources of information, and technological advances.
 - Competency 2:* Demonstrate capability and willingness for collaborative work and negotiation.
- Goal II:** Develop a person with communicative competence in Spanish and English, with native-language mastery of one of the two languages.
- Competency 3:* Demonstrate competency in oral and written communication skills in Spanish and English, with a higher level of mastery in the first language.
- Goal III:** Develop a person who values diversity, appreciates other cultures, is aware of their social, ethical, civic, and environmental responsibility and exerts leadership in a democratic context.
- Competency 4:* Demonstrate leadership qualities, appreciation for other cultures, and respect and appreciation of diversity.
 - Competency 5:* Demonstrate commitment to social, ethical, civic, and environmental responsibility.
- Goal IV:** Develop a person who understands and values Christian faith from an ecumenical openness and its implications for culture.
- Competency 6:* Apply the principles that define a culture of peace from an ecumenical-Christian, interreligious, multicultural, and academic perspective.
 - Competency 7:* Demonstrate respect and sensitivity towards religious plurality and other beliefs.
- Goal V:** Develop a person committed to the integral health, well-being, and quality of life of the individual and society.
- Competency 8:* Apply the fundamental knowledge of integral health to promote the welfare and quality of life of the individual and society.

- Goal VI:** Develop a person capable of solving problems through scientific thinking, logical and quantitative reasoning, and the use of information and communication technologies, in an ethical, critical, creative, and innovative way.
Competency 9: Apply scientific thinking and logical and quantitative reasoning for decision-making and problem-solving.
Competency 10: Use information and communication technologies for decision-making and problem-solving.
- Goal VII:** Develop a person with knowledge of the historical, social, and cultural context of Puerto Rico and the world.
Competency 11: Understand the historical, political, social, and economic processes and their effects and implications in the formation of contemporary societies.
Competency 12: Value the historical, social, and cultural differences that have contributed to forge the knowledge society.
- Goal VIII:** Develop a person who has an entrepreneurial attitude and is committed to lifelong learning.
Competency 13: Demonstrate capability for self-management, entrepreneurship, and lifelong learning in the face of social and economic changes in a global world.

Categories of the General Education Program

The General Education Program of the Inter American University of Puerto Rico comprises the following seven categories.

Basic Skills: This category develops competencies in the following areas: Spanish and English communication skills, mathematics, and information and computer technologies.

Christian Thought: This category develops the competencies that allow the understanding and appreciation of Christian faith from an ecumenical openness.

Entrepreneurial Culture: This category develops the competencies for the formation of a person with an entrepreneurial attitude and capability for self-management and entrepreneurship in the context of a globalized society.

Philosophical and Aesthetic Thought: This category develops competencies related to ethics, social responsibility, and musical, artistic, and theatrical appreciation.

Historical and Social Context: This category develops the fundamental competencies of history and social sciences to allow the understanding of society in a local and global context.

Scientific and Technological Context: This category develops the fundamental competencies for the study and understanding of the interrelation between the natural sciences, the environment, technology and the human being. It also encourages the development of a responsible ecological attitude.

Health and Quality of Life: This category develops competencies that contribute to integral health, quality of life, and healthy individual and collective lifestyles.

General Education Categories and Course Descriptions

The General Education Program (GEP) requires 48 credits for the baccalaureate and 24 for the associate degrees. It is designed so that the student takes the courses from the different categories distributed throughout his study program. Some academic programs exempt their students from a GEP course or category. In these cases, the total required credits will be lower.

Basic Skills

Basic Skills - 24 credits

Basic Skills: Spanish – 9 credits

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 SPANISH AS A FOREIGN LANGUAGE

Study of the basic communication skills in Spanish. Emphasis on the acquisition of vocabulary and the learning of basic grammatical structures to achieve an adequate oral and written communication. Reading and writing of simple texts. Requires additional laboratory hours.

3 credits

GESP 1022 INTERMEDIATE SPANISH AS A FOREIGN LANGUAGE

Development of communication skills in Spanish. Study of grammatical aspects of the language and vocabulary enrichment for daily use. Reading and writing texts of intermediate complexity. Emphasis on writing descriptive and narrative texts. Requires additional laboratory hours. Prerequisite: GESP 1021.

3 credits

GESP 2023: ADVANCED SPANISH AS A FOREIGN LANGUAGE

Study of Spanish as a Foreign Language through diverse readings to promote critical and creative competence. Study of advanced level grammatical structures. Emphasis on the writing of expository and argumentative texts. Continuous practice of oral communication skills. Requires additional laboratory hours. Prerequisite: GESP 1022 or its equivalent.

3 credits

GESP 1101 LITERATURE AND COMMUNICATION: NARRATIVE AND POETRY

Development of communicative competence through the interpretation and critical analysis of narrative, poetic, and non-literary texts. Oral and written practices of the different modes of discourse. Emphasis on the development of linguistic competence. Requires additional hours of virtual open laboratory. Core course.

3 credits

GESP 1102 LITERATURE AND COMMUNICATION: ESSAY AND THEATRE

Development of communicative competence through the interpretation and critical analysis of essays, plays, and non-literary texts. Oral and written practices of expository and argumentative texts. Emphasis on the development of discursive competence. Requires additional hours of virtual open laboratory. Prerequisite: GESP 1101. Core course.

3 credits

GESP 2203 LITERATURE AND WORLD VIEW

Study of literature to interpret reality. Emphasis on the development of advanced oral and written communication skills. Includes a selection of universal literature works representative of different themes and periods. Requires additional hours of virtual open laboratory. Prerequisite: GESP 1102. Core course.

3 credits

Basic Skills: English - 9 credits

It is required to take three consecutive English courses, of the same level, for a total of nine (9) credits. This curriculum is divided into three levels: elementary, intermediate, and advanced. Students will be placed in the levels, according to their English test score on the PEAU tests (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 transfers from universities or other higher education systems that do not require PEAU testing, as well as readmitted students who have not taken the basic skills requirements in English, will be required to have an interview with the director of the English Department or the designated person, 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 hours of virtual open laboratory.

GEEN 1101 ENGLISH AS A SECOND LANGUAGE I: ORAL COMMUNICATION

Development of English as a Second Language auditory and oral communication skills. Practice of formal and informal speech in everyday social and professional situations at local, national, and global settings. Discussion of fundamental aspects of the oral communication process. Reading and writing of simple texts and structures. Development of basic English vocabulary and grammatical structures. Requires completion of a virtual laboratory component. Required course.

3 credits

GEEN 1102 ENGLISH AS A SECOND LANGUAGE II: READING

Development of English as a second language reading skills through the analysis of different types of texts. Use of reading strategies to construct meaning and understanding of readings. Vocabulary acquisition in context. Introduction to the writing process and the paragraph structure. Practice in listening and oral communication skills. Requires completion of a virtual laboratory component. Prerequisite: GEEN 1101. Required course.

3 credits

GEEN 1103 ENGLISH AS A SECOND LANGUAGE III: WRITING

Development of English as a second language basic writing skills. Application of the writing process to produce simple paragraphs and other written texts with varied methods of organization and structure. Improvement of listening, speaking, and reading skills. Acquisition of vocabulary in context. Requires completion of a virtual laboratory component. Prerequisite: GEEN 1102. Required course.

3 credits

GEEN 1201 ENGLISH COMMUNICATION I

Discussion of appropriate use of language in an academic context. Development of oral communication skills to articulate ideas and respond effectively according to context, purpose, and audience. Interpretation of authentic text and multimedia sources through application of critical thinking, reading, and writing. Requires completion of a virtual laboratory component. Required course.

3 credits

GEEN 1202 ENGLISH COMMUNICATION II

Application of critical reading skills to analyze texts. Interpretation of readings to explore content from multiple perspectives and to develop informed arguments. Writing of essays and refinement of speaking skills in an academic context. Requires completion of virtual laboratory component. Prerequisite: GEEN 1201. Required course.

3 credits

GEEN 1203 ENGLISH COMMUNICATION III

Development of research skills to foster academic inquiry. Application of critical reading and thinking skills to the research process. Integration of the principles of research writing in the development of a documented essay. Requires completion of virtual laboratory component. Prerequisite: GEEN 1202. Required course.

3 credits

GEEN 2311 READING AND WRITING

Reading and analysis oriented toward essay writing. Emphasis on organizational skills, writing as a process, and the various types of writing modes. Vocabulary acquisition in context. Required course. Requirement: Score of 600 or above on the CEEB. Students who have not taken the CEEB will follow an alternate placement procedure.

3 credits

GEEN 2312 LITERATURE AND WRITING

Study of culturally and historically diverse literature through readings in fiction, drama, and poetry. Students will write essays presenting critical readings of literary texts. Prerequisite: GEEN 2311. Required course.

3 credits

GEEN 2313 RESEARCH AND WRITING

The planning, research process, and writing of academic works. Emphasis on skills for searching, comprehension, evaluation, and effective use of information. Vocabulary acquisition in context. Prerequisite: GEEN 2312. Required course.

3 credits

Basic Skills: Mathematics - 3 credits

Students will take 3 credits in math. The courses will be supported by a virtual open laboratory.

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.

GEMA1000 QUANTITATIVE REASONING

Study of the set of real numbers, measuring systems, geometry (length, area and volume), equation solving for linear variables that include ratios, proportions, mathematical financial formulas and literal equations. Basic concepts of statistics: frequency distribution, graphs, measures of central tendency, dispersion and probability principles. Requires additional hours of virtual open laboratory.

3 credits

GEMA 1001 MATHEMATICS FOR TEACHERS I

Application of the fundamental topics of numeration and operation, 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 subject areas, the integration of the cross-sectional topics of the curriculum, and the integration of available technology as a working tool. This course is designed for elementary school teachers. A minimum grade of C is required to pass this course. Requires additional hours of virtual open laboratory.

3 credits

GEMA 1002 MATHEMATICS FOR TEACHERS II

Application of the fundamental topics of measuring, 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 subject areas, the integration of the cross-sectional topics of the curriculum, and the integration of available technology as a working tool. This course is designed for elementary school teachers. A minimum grade of C is required to pass this course. Requires additional hours in a virtual 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; and of polynomials, operations, and factoring. Solution of first and second degrees equations, of equations with rational and radical expressions, and of linear inequations. Requires additional hours of virtual open laboratory.

3 credits

Basic Skills: Information and Computing - 3 credits

Students will take 3 credits in this category. The course will be supported by a virtual open laboratory.

GEIC 1010 INFORMATION AND COMPUTING TECHNOLOGIES

Development of skills for processing information by means of the computer. Use of computer programs to establish electronic communication of bibliographic databases, web browsers, operating systems, word processors, electronic graphical presentations, and spreadsheet calculations. Requires additional hours of virtual open laboratory. Core course.

3 credits

Christian Thinking - 3 credits

Students will take 3 credits in this category.

GECF 1010 INTRODUCTION TO THE CHRISTIAN FAITH

Study of the Christian religion in a global and pluralistic context, from a social, historical perspective and an ecumenical orientation. Discussion of the Bible's general content, with emphasis on the reflection on the person and the contributions of Jesus of Nazareth, as a model of life and change promoter. Introduction to Christian theology, in accord with other disciplines and currents of thought. Promotes commitment to others, community service and respect for others, congruent with the universal values of the Gospels. Core course.

3 credits

Entrepreneurial Culture - 3 credits

Students will take 3 credits in this category.

GEEC 2000 ENTREPRENEURIAL CULTURE

Discussion of aspects that foster the development of attitudes and mentality aimed at taking initiatives, identifying opportunities, and addressing challenges of personal, social, and economic settings to promote an entrepreneurial culture. Core course.

3 credits

Philosophical and Aesthetic Thought - 6 credits

Students will take 6 credits in this category. The GEPE 4040 is a core course.

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

GEPE 3010 ART APPRECIATION

Study of a general panorama of the creative process and the relationship of the artist with his work; the work of art and its importance for the viewer through an appreciative process. Emphasis on the foundations, functions, vocabulary, techniques, and materials of the visual arts. Study of art topics in different periods and the development of the arts in Puerto Rico. Promotes student participation in visits to museums and galleries. Prescribed distributive course.

3 credits

GEPE 3020 MUSIC APPRECIATION

Study of the multiple functions of music in society through the gradual development of auditory perception. Promotes the appreciation and enjoyment of local and international music, as well as the music from past European societies and those of the Americas, from the 19th century to the present day. Prescribed distributive course.

3 credits

GEPE 3030 THEATRE APPRECIATION

Study of the fundamentals of the performing arts and their incorporation to life in society. Integration of the elements for the analysis of the performing arts, allowing for the development of a critical and evaluative exercise of these. Theoretical revision of theatrical production milestones from its origins to the present, both in dramaturgy as in staging. Prescribed distributive course.

3 credits

GEPE 4040 ETHICS AND SOCIAL RESPONSIBILITY

Critical analysis on the ethics of responsibility in its multiple dimensions. Emphasis on the meaning of ethical knowledge in the post-modernity context. Includes the study of environmental and socio-political responsibility, the criteria for responsible ethics, as well as the criteria and proposals for an ethic of coexistence and solidarity action. A communitarian service project is required. Core course.

3 credits

Historical and Social Context - 6 credits

Students will take 6 credits in this category. The GEHS 2010 course is a core requirement.

However, international students will have the option of selecting the 6 credits of their preference from the courses in this category.

Historical Component

GEHS 2010 HISTORICAL PROCESS OF CONTEMPORARY PUERTO RICO

Analysis of the historical process of contemporary Puerto Rico through the study of its economic, political, social, and cultural transformations that have been transcendental in its development and in its relations with the World. Emphasis on the period covering from the 19th century to the present. Core 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

*Social Component***GEHS 3020 GLOBAL SOCIETY**

Study of the global society from a political and economic perspective; and its social, cultural and geographical impact. Emphasis on the analysis of challenges and problems of the contemporary world. Prescribed distributive course.

3 credits

GEHS 3050 HUMAN FORMATION, SOCIETY, AND CULTURE

Analysis of the processes of formation, organization, and adaptation of human beings from the psychological, sociological, and anthropological perspectives. Emphasis on the impact of biopsychosocial systems, cultural processes, and social changes in human behavior. Prescribed distributive course.

3 credits

Scientific and Technological Context - 3 credits

Students will take 3 credits in this category.

Students studying for the Bachelor of Arts in Secondary Education in Biology or Chemistry, must take the GEST 2030 course.

GEST 2020 THE NATURAL ENVIRONMENT AND THE HUMAN BEING

Application of the scientific method to the study of human beings' interactions with the natural environment. The scientific perspective of the origin of life and natural selection as a mechanism for evolution is identified. Study of the relationship between human activities and their impact on the environment. Emphasis on identifying actions as problem solutions as well as means for improving the quality of the environment. Prescribed distributive course.

3 credits

GEST 2030 TECHNOLOGY AND ENVIRONMENT

Identification of the fundamental concepts of science and the impact of technology on the environment. Distinction of energy sources and their economic and environmental implications. Study of the relationship of climatological phenomena with human activities. Evaluation of the impact of technological development on human beings and their environment. Prescribed distributive course.

3 credits

Health and Quality of Life - 3 credits

Students will take 3 credits in this category.

Students of the Nursing Program are exempted from this category.

GEHP 3000 INTEGRAL HEALTH AND QUALITY OF LIFE

Study of the dimensions of integral health and its effect on psychomotor, cognitive, and affective parameters. Emphasis on the scientific evidence regarding knowledge related to integral health, physical fitness, nutrition, and stress response. Individual and community responsibility in healthy lifestyles is highlighted. Includes physical activity, exercise, recreation, and sports as preventive or therapeutic health strategies. The course provides practical experiences. Core course.

3 credits

Explanatory note:

Foreign language teaching

The teaching of foreign languages contributes to the internationalization of the curriculum. In addition, it encourages the development of historical, social, and cultural competencies, since the learning of a foreign language requires the sociocultural context of the country whose vernacular is taught as a foreign language in the Institution.

Accordingly, students interested in taking courses in foreign languages, such as French, Portuguese, Italian, German, and Mandarin, among others, may take two courses (6-8 credits) as part of their general academic training. These courses will be replaced by six (6) credits of GEP prescribed courses, specifically: three (3) of the Philosophical and Aesthetic Thought category and three (3) of the Historical and Social Context category.

General Education Requirements for Associate Degrees

General Education Requirements for Associate Degrees - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA		Mathematics	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEHS	2010	Historical Process of Contemporary Puerto Rico	3
		or	
GEEC	2000	Entrepreneurial Culture	3

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: Information and Computing	3

Philosophical and Aesthetic Thought: 6 credits

GEPE	4040	Ethics and Social Responsibility	3
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Select one course from the following:

GEPE	3010	Art Appreciation	3
GEPE	3020	Music Appreciation	3
GEPE	3030	Theatre Appreciation	3

Christian Thought: 3 credits

GECF	1010	Introduction to the Christian Faith	3
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Entrepreneurial Culture: 3 credits

GEEC	2000	Entrepreneurial Culture	3
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Historical and Social Context: 6 credits

GEHS	2010	Historical Process of Contemporary Puerto Rico	3
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Select one course from the historical or social component:

Historical Component

GEHS	4020	Ancient and Medieval Western Civilization	3
GEHS	4030	Modern and Contemporary Western Civilization	3

Social Component

GEHS	3020	Global Society	3
GEHS	3050	Human Formation, Society, and Culture	3

Explanatory Note:

International students will have the option of selecting the 6 credits of their preference from the courses in this category.

Scientific and Technological Context - 3 credits

Select one course from the following:

GEST	2020	The Natural Environment and the Human Being	3
GEST	2030	Technology and Environment	3

Health and Quality of Life - 3 credits

GEHP	3000	Integral Health and Quality of Life	3
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Explanatory note:

Foreign language teaching

The teaching of foreign languages contributes to the internationalization of the curriculum. In addition, it encourages the development of historical, social, and cultural competencies, since the learning of a foreign language requires the sociocultural context of the country whose vernacular is taught as a foreign language in the Institution.

Accordingly, students interested in taking courses in foreign languages, such as French, Portuguese, Italian, German, and Mandarin, among others, may take two courses (6-8 credits) as part of their general academic training. These courses will be replaced by six (6) credits of GEP prescribed courses, specifically: three (3) of the Philosophical and Aesthetic Thought category and three (3) of the Historical and Social Context category.

Undergraduate (Associate and Bachelor's) Degree Programs

Accounting (AAS and BBA)

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 major courses with a minimum grade of C.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

Knowledge and understanding of:

1. the accounting theory using as its base the generally accepted principles of financial accounting in the national and international environment.
2. the state tax legislation.
3. the theory of managerial and cost accounting for their application in organizations.
4. the information and communication technology used in accounting processes.
5. the legal responsibility, the ethical principles and the Code of Ethics of the accounting profession.

Skills

1. Apply the theory and the principles of financial accounting to prepare, analyze and report on the economic results and the financial situation of the organization.
2. Apply the provisions of the Code of Internal Revenue of Puerto Rico and the United States (federal) and their amendments to determine the taxes of the individual.
3. Apply the theory of managerial and cost accounting and for the accumulation, allocation, communication of results and analysis for decision making.
4. Analyze the accumulation of costs for the purpose of planning, implementing and controlling the operations of the company.
5. Use information and communication technology related to the accounting profession.

Attitudes

1. Value the importance of continuous learning to stay competent in the profession.
2. Demonstrate an ethical conduct in the different scenarios that you are in.
3. Demonstrate interest in participating in professional activities that contribute to your academic and professional development, such as workshops, lectures, seminars, professional contests encounters, internships.

All campuses are authorized to offer this Program. In addition, the Aguadilla, Guayama and Ponce campuses are also authorized to offer this Program through online learning.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN ACCOUNTING

General Education Requirements	24 credits
Major Requirements	34-35 credits
Elective Courses	<u>3</u> credits
Total	61-62

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1200	Fundamentals of Algebra	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEHS	2010	Historical Process of Contemporary Puerto Rico or	3
GEEC	2000	Entrepreneurial Culture	3

Major Requirements – 34-35 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	2041	Puerto Rico Tax System for Individuals* or	4
ACCT	2085	Introduction to Federal Tax System for Individuals*	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
BADM	1900	Fundamentals of Management	3
FINA	2101	Corporate Finance I	3
MAEC	2211	Principles of Economics (Micro)	3
MAEC	2221	Basic Statistics	3

*Students, in consultation with their academic adviser, will select between ACCT 2041 and ACCT 2085, the course that is more appropriate in agreement with their professional interests and with their field.

Bachelor's Program

The Baccalaureate in Business Administration in Accounting aspires to develop professionals in the Accounting field who are successful in the performance of their functions in the private and public sectors.

The Accounting program has as goals to:

1. Develop professionals dedicated to the mastery of knowledge and skills related to the exercise of the profession of Accounting at the national and international levels.
2. Foment the use of social, ethical and legal aspects in the process of decision making.
3. Promote the continuous development of the competencies required in this discipline as a core part of their commitment with their personal and professional improvement.

The program has as its objectives to:

1. Integrate the knowledge and skills related to the applicable principles, norms and current laws, as well as the technology in diverse scenarios at the national and international levels, into the accounting practice.
2. Apply the social, ethical and legal principles as a basis for the process of decision making.
3. Foment in students the responsibility to maintain a process of continuous learning in order to obtain their personal and professional development and to give relevant answers to the exigencies of their environment.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

Knowledge and understanding of:

1. the accounting theory using as its base the generally accepted principles of financial accounting in the national and international environment.
2. the generally accepted theory and norms for auditing the financial information of the organization.
3. the state and federal tax legislation applicable to individuals.
4. the theory of managerial accounting and costs for its application in organizations.
5. the theory and the applicable accounting principles in non-profit organizations.
6. the information and communication technology used in accounting processes.
7. the legal responsibility, the ethical principles and the Code of Ethics of the accounting profession.

Skills

1. Apply the theory and the principles of financial accounting to prepare, analyze and report on the economic results and the financial situation of the organization.
2. Apply the theory and the audit norms to emit judgment on the results of the structure of the internal control and the results of an audit of accounts.
3. Apply the provisions of the Code of Internal Revenue of Puerto Rico and the United States (federal) and their amendments to determine the taxes of the individual.
4. Apply the theory of managerial accounting and costs for the accumulation, allocation, communication of results and analysis for decision making.
5. Analyze the accumulation of costs for the purpose of planning, implementing and controlling the operations of the company.
6. Use information and communication technology related to the accounting profession.

Attitudes

1. Value the importance of continuous learning to stay competent in the profession.
2. Demonstrate an ethical conduct in the different scenarios that you are in.
3. Demonstrate interest in participating in professional activities that contribute to your academic and professional development, such as workshops, lectures, seminars, professional contests encounters, internships.

The Accounting program provides learning experiences through the use of technology and it exhorts students to continue their professional training. The new trends in the way of conducting businesses require ample knowledge in accounting and other areas such as communication skills, use of the technology, economics, and finance, among others.

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

All campuses are authorized to offer this Program.

This Program, in the San Germán Campus, is accredited by the *International Assembly for Collegiate Business Education (IACBE)*, located on 11374 Strang Line Road, Lenexa, Kansas, USA.

This Program, in the Bayamón Campus, is accredited by the *Accreditation Council for Business Schools and Programs (ACBSP)* (<https://www.acbsp.org/>).

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN ACCOUNTING

General Education Requirements	48 credits
Core Course Requirements	37 credits
Major Requirements	33 credits
Elective Courses	<u>3 credits</u>
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.

Core Course Requirements - 37 credits

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
BADM	4300	Managerial Economics	3
FINA	2101	Corporate Finance I	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	Business Communication in Spanish or	
OMSY	3040	Business Communication in English	3

Major Requirements - 33 credits

ACCT	2041	Tax System of Puerto Rico for Individuals	4
ACCT	2055	Cost Accounting I	4
ACCT	2061	Intermediate Accounting I	4
ACCT	2062	Intermediate Accounting II	4
ACCT	2063	Intermediate Accounting III	4
ACCT	2085	Introduction to Federal Taxes for Individuals	3
ACCT	3030	Computerized Systems Applied to Accounting	3
ACCT	3460	Accounting for Non Profit Organizations	3
ACCT	4010	Audit and Ethics for Accountants	4

Minor in Auditing

Intended for students of the Business Administration programs.

The Barranquitas and Bayamón campuses are authorized to offer this Minor.

Requirements of the Minor in Auditing - 27 credits

ACCT	2061	Intermediate Accounting I	4
ACCT	2062	Intermediate Accounting II	4
ACCT	2063	Intermediate Accounting III	4
ACCT	4010	Auditing and Ethics for Accountants	4
AUDI	3091	Fundamentals of Internal Auditing	4
AUDI	3092	Internal Auditing Administration	3
AUDI	3190	Auditing of Information Systems	4

Minor “CPA Track”

Minor “CPA Track” - 29 credits

Students who aspire to take the Certified Public Accountant (CPA) examination must have approved 150 credit-hours, as required by the Accounting Examining Board of Puerto Rico.

These students must have approved 29 additional credits with a minimum grade of C in each course.

The required courses listed below will be taken and 15 additional credits in coordination with the academic advisor.

Required Courses - 14 credits

ACCT	2042	Tax System of Puerto Rico for Corporations, Partnerships and Other Entities	3
ACCT	3086	Federal Taxes for Corporations, Partnerships and Other Entities	3
ACCT	3480	Accounting for Business Combinations and Partnerships	4
ACCT	4020	Commercial Law for CPA Candidates	4

Additional Courses - 15 credits

These courses will be selected in coordination with the academic advisor.

Note: It is recommended to select 3000 and 4000-level courses.

Minor in Financial Accounting

The Minor in Financial Accounting is designed so that students of any academic program can develop techniques to carry out basic tasks of accounting, within their profession; in addition, it provides other opportunities of employment.

All campuses are authorized to offer this minor.

Requirements for the Minor in Financial Accounting - 19 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	2041	Puerto Rico Tax System for Individuals	4
ACCT	2061	Intermediate Accounting I	4
ACCT	2062	Intermediate Accounting II	4
ACCT	3030	Computerized System Applied to Accounting	3

Minor in Taxes

The Minor in taxes is designed for students whose major is not accounting. This Minor will help students in the development of techniques and skills in the area of state and federal taxes.

All campuses are authorized to offer this minor.

Requirements for the Minor in Taxes - 21 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to the Managerial Accounting	4
ACCT	2041	Puerto Rico Tax System for Individuals	4
ACCT	2042	Tax System of Puerto Rico for Corporations, Partnerships and Other Entities	3
ACCT	2085	Federal Taxes for Individuals	3
ACCT	3086	Federal Taxes for Corporations, Partnerships and Other Entities	3

Airway Sciences (BS)

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 choose one of the four minors, a minor in Air Traffic Control, a minor in Aviation Management irway Sciences, a minor in Commercial Pilot, or a minor in Airway Dispatcher.

Profile of Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Understandi the professional ethics and decision making in the aviation industry.
2. Know the contemporary problems in the aviation industry.
3. Understand the national and international environment of aviation.

Skills

1. Ability to apply knowledge of mathematics, sciences and applied sciences to the disciplines related to aviation.
2. Capacity to analyze and to process data.
3. Capacity to work effectively in multidisciplinary and diverse work teams.
4. Ability to communicate effectively both orally and in writing.
5. Capacity to use the techniques, skills and modern technology necessary for professional performance.
6. Ability to apply the pertinent knowledge in the identification and solution of problems.
7. Capacity to apply the knowledge of the sustainability of the business to the aviation industry.

Attitudes

1. Recognition of the need and the capacity to participate in a process of life-long learning.

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.

Profile of the Competencies of Graduates:

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Understand professional ethics and decision making in the aviation industry.
2. Have knowledge of contemporary problems in the aviation industry.
3. Understand the national and international environment of aviation.

Skills

1. Obtain the ability to apply knowledge of mathematics, sciences and applied sciences to the disciplines related to aviation.
2. Acquire the capacity to analyze and to process data.
3. Have the capacity to work effectively in multidisciplinary and diverse teams.
4. Acquire the ability to communicate effectively in writing as well as orally.
5. Have the capacity to use the techniques, the skills and the modern technology necessary for professional employment.
6. Acquire the ability to apply the relevant knowledge in the identification and solving of problems.
7. Have the capacity to apply the knowledge of the sustainability of the business to the aviation industry.

Attitudes

1. Recognize the necessity and have the capacity to participate in a process of life-long learning.

Specific Admission Requirements

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.

Note: All students must present a First Class Medical Certificate issued by a medical doctor recognized by the Federal Aviation Administration (FAR Part 67) in order to take classes with a flight laboratory.

Specific Admission Requisites for Transfer Students or for Concentration Change

Transfer or concentration change students from other programs of the Inter American University of Puerto Rico or transfers from other universities or institutions of higher education can enter the programs in Aviation Sciences, if they meet the admission requisites of the Inter American University of Puerto Rico.

1. Have a grade point average (GPA) of 2.5 or higher.
2. Have passed the Pre-Calculus course (MATH 1500) or equivalent with a grade greater than or equal to C.
3. To have passed the English courses at the intermediate level (GEEN 1201 and 1202) or English at the advanced level (GEEN 2311 and 2312) or equivalents with a grade greater than or equal to B.

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)
 - Certified Flight Instructor-Multi-Engine (MEI)

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.

The Program is accredited by the Aviation Accreditation Board International (AABI) (<http://www.aabi.aero/>).

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN AIRWAY SCIENCES

General Education Requirements	42 credits
Core Course Requirements	46 credits
Major Requirements	<u>37 credits</u>
Total	125

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. Students who have obtained a score equal to or greater than 550 in the area of mathematical achievement in the university admission test (College Board’s PAA) are exempted from GEMA 1200 and will take three credits in any Aeronautics (AWSC) course that are not core requisites nor from the highest concentration that the student has declared. In the Philosophical and Aesthetic 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

(1021, 1022 and 2023 will count towards the requirement for non-native speakers)

Core Course Requirements - 46 credits

AWSC	2000	Introduction to Aeronautics and Space	3
AWSC	2130	English Proficiency for Aviation Professionals	3
AWSC	3300	Laws 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
AWSC	4310	Human Factor in Aviation	3
BADM	1900	Fundamentals of Management	3
ENGL	2075	Technical Literature	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3

MAEC	2221	Basic Statistics	3
MATH	1500	Precalculus	5
PHYS	3500	Physics for Aviation	4
PSYC	1051	General Psychology I	3

Major Requirements

Aircraft Systems Management (Professional Pilot)

Aircraft Systems Management (Professional Pilot) - 37 credits

AWSC	2115	Private Pilot Theory	5
AWSC	2116	Private Pilot Flight Laboratory	1
AWSC	3155	Instrument Rating	4
AWSC	3160	Commercial Pilot	3
AWSC	3411	Principles of Air Traffic Control	3
AWSC	4204	Airline Operations	3
AWSC	4305	Aviation Meteorology	3
AWSC	4320	Advanced Aircraft Systems	3
AWSC	4340	Applied Aerodynamics	3
AWSC	4370	Flying Instructor	4
AWSC	4394	Training Techniques for Flight Crew (CRM Training)	3

Select between:

AWSC	4364	Flying Instructor- Instruments	1
AWSC	4373	Multi-engine Instructor	1
		or	
AWSC	4375	Commercial Helicopter Pilot Add-On	2

Aviation Sciences Management

Aviation Sciences Management - 37 credits

AWSC	2020	Aviation Fundamentals	3
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	2101	Corporate Finance	3

Select nine credits from the following:

AWSC	2300	Airline Passenger Services	3
AWSC	3411	Principles of Air Traffic Control	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
AWSC	4913	Practicum in Air Agencies Operations	3

Minor in Air Traffic Control

The minor in air traffic control is offered to all students who are interested and who meet the established requirements. This program offers to the student the initial training for air traffic controller. Once students complete a bachelor's degree and the requirements of this minor, they can request admission to the Academy of the Federal Aviation Administration in the city of Oklahoma. The admission to the minor in air traffic control is limited. The 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 studies leading to a bachelor's degree in Inter American University of Puerto Rico.
2. Have a minimum academic index of 2.8.
3. Have a mastery of the English language both orally and in writing.
4. Complete an interview with the panel of evaluation of the minor of air traffic control.
5. Be under 30 years of age when completing the specialization requirements and meet the job requirements of the FAA.

The Bayamón Campus is authorized to offer this minor.

Requisitos de la Concentración en Control de Tráfico Aéreo - 27 créditos

AWSC	2000	Introduction to Aeronautics and Space	3
AWSC	2020	Aviation Fundamentals	3
AWSC	2020	Aviation Fundamentals	3
AWSC	3411	Principles of Air Traffic Control	3
AWSC	4305	Aviation Meteorology	3
AWSC	4515	Control de Tráfico Aéreo: Operación de Torres	4
AWSC	4516	Control de Tráfico Aéreo: Operación de Radares	4
AWSC	4517	Control de Tráfico Aéreo: Operación en Centros y Terminales	4

Minor in Airway Sciences

Intended for students in Business Administration Programs (B.B.A.) who meet the requirements corresponding to the following minor. Students of other programs may take this minor, but they must take the following courses as prerequisites: GEMA 1000, BADM 1900, BADM 4300, MAEC 2211, MAEC 2212 and MAEC 2221.

The Bayamón Campus is authorized to offer this minor.

Requisitos de Concentración Menor en Gerencia de Aviación-24 créditos

AWSC	2000	Introduction to Aeronautics and Space	3
AWSC	3300	Aviation Law	3
AWSC	3600	Flight Safety and Security	3
AWSC	4000	Airport Development and Operations	3
AWSC	4055	Management of Air Cargo	3
AWSC	4600	Airline Management of Aviation	3
AWSC	4680	Strategic Management	3
BADM	4800	Operations Management	3

Minor in Commercial Pilot

The Bayamón Campus is authorized to offer this Minor.

Requirements of the Minor in Commercial Pilot - 18 credits

AWSC	2000	Introduction to Aeronautics and Space	3
AWSC	2115	Private Pilot Theory	5
AWSC	2116	Private Pilot Flight Laboratory	1
AWSC	3140	Instrument Rating	3
AWSC	3160	Commercial Pilot	3
AWSC	3411	Principles of Air Traffic Control	3

Note: All students registered in any academic program at Inter American University of Puerto Rico may take this Minor as long as they present evidence of the first class medical certificate issued by a medical doctor recognized by the Federal Administration of Aviation, FAR Part 67) and pass an interview with the Head Instructor.

Minor in Airway Dispatcher

The Bayamón Campus is authorized to offer this Minor.

Requirements of the Minor in Airway Dispatcher - 27 créditos

AWSC	2000	Introduction to Aeronautics and Space	3
AWSC	2020	Aviation Fundamentals	3
AWSC	2130	English proficiency for Aviation Professionals	3
AWSC	3411	Principles of Air Traffic Control	3
AWSC	3600	Flight Safety and Security	3
AWSC	4305	Aviation Meteorology	3
AWSC	4310	Human Factors in Aviation	3
AWSC	4510	Airway Dispatcher I	3
AWSC	4520	Airway Dispatcher II	3

Agricultural Technology (AAS)

The Associate of Applied Science Degree in Agricultural Technology aspires to train professionals in the agricultural sector. This program is designed for students who are interested in the area of agricultural production and in agro-industries. The graduates of this program will be able to acquire theoretical and practical knowledge that will permit them to work in the quality, production and farming innovation areas, and in preservation of the environment.

The focus of the mission and philosophy of the curriculum frames a vision of graduates with a theoretical and practical education that enables them to develop successfully in a professional and personal manner. The Associate of Applied Science Degree in Agricultural Technology has as its educational goal to develop students with the knowledge, skills and attitudes that will prepare them for employment, to create agricultural businesses, and at the same time to offer good services to the society to which they belong. The purpose is to form well-mannered, competent, responsible and respectful professionals for their own benefit and that of their profession and for society.

Profile of Competencies of Graduates

The Program is designed to develop the competencies that will permit students to:

Knowledge

Demonstrate knowledge and understanding of:

1. the applicability of the theoretical and scientific principles for the improvement of the systems of food production, and the detection and solution of agricultural problems.
2. the aspects that influence in the planting and development of crops.
3. the etiology and the diagnosis of diseases in plants and animals.
4. the factors responsible for animal and vegetable health.
5. the scientific evidence applicable to the identification and solution of agricultural problems in order to improve food production by incorporating technological advances.

Skills

1. Develop technical skills for the raising, feeding, the habitat and the care of animals.
2. Demonstrate ability to identify the factors that affect seeding and development of the crops in the systems without soil.
3. Demonstrate ability for the use and handling of the equipment and agricultural implements.
4. Apply techniques for fertilization, seeding, control of grass, pruning, prevention, treatment and control of plagues and diseases.
5. Design facilities for animal lodging, drainage systems and irrigation in agreement with the laws, standards and regulations established in Puerto Rico and among others countries of the world.
6. Develop the skills to categorize and identify the main groups of plants, and their morphologic and reproductive characteristics.
7. Apply different strategies to reduce the production of agricultural waste.
8. Develop ability for the establishment and administration of agricultural businesses.

Attitudes

1. Integrate the ethical-legal and moral values in the performance of their functions and in environmental conservation.
2. Develop skills in team work and interpersonal relations in the work environments.

The Guayama Campus is authorized to offer this program.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN AGRICULTURAL TECHNOLOGY

General Education Requirements		24 credits
Major Requirements		<u>36 credits</u>
	Total	60

General Education Requirements - 24 credits

Twenty-four (24) credits are required as established in the General Catalog in the section "General Education Requirements for Associate Degrees".

Major Requirements - 36 credits

BIOL	1100	Botany and Plant Physiology	3
APTE	1110	Edaphology	3
APTE	1120	Plant Pathology	4
APTE	2200	Agricultural Health and Security	3
APTE	2211	Crop Production I	4
APTE	2212	Crop Production II	4
APTE	2220	New Agricultural Trends	4
APTE	2230	Animal Production	3
APTE	2240	Agricultural Waste	3
APTE	2250	Product Commercialization	3
APTE	2910	Practicum in Agriculture	2

Applications Development (BS)

The Bachelor of Science in Applications Development offers theoretical and practical training aimed at developing professionals focused on technical areas with knowledge of business data management. It also fosters skills in application development, analytical problem solving, database management, computer networks and their security, and the use of tools to manage company information. The Program provides general knowledge of business organizations and promotes the development of skills that will enable the student to launch his own business or contribute to the success of his employer's business.

Program Objectives

1. Develop applications for computer information technologies.
2. Use tools for effective business data management.
3. Understand the basic concepts of computer networks.
4. Master the development cycle of an application.
5. Analyze, design and manage relational databases.
6. Understand the basic process for starting a business.
7. Demonstrate teamwork skills.
8. Develop effective communication skills for a variety of audiences.
9. Provide the student with an environment that integrates knowledge, skills, attitudes, values, and social and ethical aspects of the discipline.

Profile of the Competencies of Graduates

This program is designed to develop the competencies that will allow students to:

Knowledge

Demonstrate knowledge and understanding of:

1. cross platform application development tools for desktops, Internet and mobile devices.
2. the basic concepts of computer networks.
3. the concepts of ethics and social responsibility of the discipline.
4. database reporting tools.
5. the basic concepts of computer security.
6. the basic process for starting a business.

Skills

1. Develop cross platform application tools for desktop, Internet and mobile devices.
2. Analyze and design databases.
3. Demonstrate mastery of the tools for the management and reporting of electronic data.
4. Implement security concepts in the development of applications.

Attitudes

1. Appreciate the ethical values that prevail in the development of applications.
2. Acknowledge the importance of technology in society and in the economy of a country.
3. Acknowledge the importance of clients in an information system.

The Bayamón Campus is authorized to offer this program.

REQUIREMENTS OF THE BACHELOR OF SCIENCE IN APPLICATIONS DEVELOPMENT

General Education Requirements	45 credits
Specialization Requirements	19 credits
Related Requirements	53 credits
Elective Courses	<u>3 credits</u>
Total	120 credits

General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the General Education Requirements for Bachelor's Degree section. Students in this program are exempt from taking the course from the category of Information and Computing (GEIC 1010). Students enrolled in this program will take GEMA 1200 of the Basic Skills Math category.

Specialization Requirements - 19 credits

ADEV	2500	Introduction to Cloud Network Management	3
ADEV	3070	Information Systems Project Management	3
ADEV	3500	Decision Support System	3
ADEV	3850	Client Management Software	3
ADEV	397_	Special Topics	3
ADEV	4504	Capstone Project	4

Related Requirements - 53 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Management Accounting	4
MAEC	2140	Fundamentals of Qualitative Methods	3
MAEC	2221	Basic Statistics	3
ENTR	2200	Business Fundamentals	3
COMP	2025	Web Design	3
COMP	2120	Programming Logic	3
COMP	2315	Structured Programming	3
COMP	2400	Object Oriented Programming	3
COMP	2501	Discrete Computational Structures I	3
COMP	2800	Databases	3
COMP	2900	Data Structures	3
COMP	3400	Software Engineering	3
COMP	3015	Web Programming with Database	3
COMP	2850	Mobil Computing	3
COMP	4210	Cloud Computing	3
COMP	4410	Computational Security	3

Biology (BS)

The Program of the Bachelor of Science Degree in Biology aspires to prepare professionals able to understand the biological processes, with a multidisciplinary approach. It provides the experiences that will help them to identify, analyze and solve problems of a biological nature being by using the scientific method. It causes the development of knowledge, laboratory skills and attitudes to exercise the profession with ethical, critical and creative responsibility. It prepares them to face work scenarios or to continue graduate studies.

The Bachelor of Science Degree in Biology has the following goals and objectives.

Goals of the Program

1. To develop professionals in the field of Biology centered in the mastery of the knowledge of the discipline by means of a multidisciplinary and integrating approach, framed in a scientific and humanistic culture.
2. To promote scientific research, the management of information and the use of technology as a means of producing and development knowledge in the field of Biology.
3. To promote the solution of problems related to the field of the Biology framed in ethical and social responsibility.
4. To foment continuing education as a means to maintain the professional competencies in the field of Biology in the different academic and labor scenes updated.

Objectives of the Program

1. To apply the knowledge of the discipline by means of a multidisciplinary and integrating approach in different contexts related to the field of Biology.
2. To use scientific research, management of information and the use of the technology as a means of developing knowledge in the field of Biology.
3. To use the scientific method in a critical and creative way in the solution of problems related to the field of Biology, with ethical and social responsibility.
4. To recognize the importance of continuing education as means for development and professional performance in the field of Biology.

In order to fulfill the graduation requirements for the Bachelor of Sciences in Biology, students must obtain a minimum grade of C in the Biology courses (BIOL) that are part of the Major Requirements and the Prescribed Distributive Requirements

Profile of the Competencies of Graduates

The Program is designed to develop the competencies that will permit students to:

Knowledge

To demonstrate knowledge and understanding of:

1. concepts of molecular, cellular and organismal biology and the metabolic processes to maintain homeostasis.
2. concepts of classic, molecular and population genetics integrated to the evolutionary processes and biodiversity.
3. phylogenetical, taxonomical, anatomical and physiological principles of the main plant, animal and microorganism groups and their interaction in the ecosystems.

Skills

1. apply the scientific method and the use of technology to design and to perform experiments using laboratory equipment and the suitable techniques in a critical and creative way.

- communicate in an oral and written form the results of laboratory experiences or research using the scientific format.

Attitudes

- demonstrate esteem for the scientific culture and its ethical and social implications in the solution of problems and decision making related to the conservation of natural and environmental resources.
- show the importance of staying updated in the knowledge related to the discipline of Biology.

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	42 credits
Major Requirements	36 credits
Related Requirements	29-30 credits
Prescribed Distributive Requirements	12 credits
Elective Courses	<u>3 credits</u>
Total	122-123

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 from the category Scientific and Technological Context and course GEHP 3000 - Integral Health and Quality of Life of the category of Health and Quality of Life. The students of this Program will take GEMA 1200 in the category Basic Skills in Mathematics.

Major Requirements - 36 credits

BIOL	1101	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	1104	Biology Skills Laboratory II	1
BIOL	2103	Zoology	3
BIOL	2104	Botany	3
BIOL	2153	Biostatistics	3
BIOL	3105	General Microbiology	4
BIOL	3106	Human Anatomy and Physiology	4
BIOL	3010	Genetics	3
BIOL	3503	Ecology	3
BIOL	4604	Cellular and Molecular Biology	3
BIOL	4605	Cellular and Molecular Biology Skills Laboratory	2

Related Requirements.-29 or 30 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

MATH	1500	Precalculus	5
		or	
MATH	1511	Precalculus I and	3
MATH	1512	Precalculus II	3
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

Prescribed Distributive Requirements - 12 credits

Students will select 12 credits from the following courses:

BIOL	2800	Introduction to Astrobiology	3
BIOL	3100	Foundations of Animal Science	3
BIOL	3200	Foundations of Animal Nutrition	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	3601	Comparative Anatomy and Physiology I	3
BIOL	3602	Comparative Anatomy and Physiology II	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
CHEM	3320	Analytical Chemistry	4
CHEM	4220	Biochemistry	4
MASC	3600	Marine Biology	3
MASC	3603	Marine Biology Laboratory	1
MASC	3620	Ichthyology	3
MASC	4030	Coral Reef Ecology	3
MASC	4040	Biology of Marine Mammals, Birds and Turtles	3
MATH	2251	Calculus I	5

Minor in Biology

This minor is aimed at students of the bachelor's degrees in Biotechnology, Environmental Sciences and Forensic Science.

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

Requirements of the Minor in Biology - 19 créditos

BIOL	2103	Zoology	3
BIOL	2104	Botany	3
BIOL	3106	Human Anatomy and Physiology	4
BIOL	3503	Ecology	3

Select two (2) courses from the following:

BIOL	3504	Environmental Health	3
BIOL	4303	Mycology	3
BIOL	4304	Medical Mycology	3
BIOL	4306	Virology	3
BIOL	4405	Embryology	3
BIOL	4494	Pharmacology	3
BIOL	4503	Conservation and Management of Natural Resources	3
BIOL	4905	Pathology	3

Minor in Bioinformatics

Requisites for the Minor in Bioinformatics – 23 credits

This minor is directed to students of the Bachelor of Science in Biology (BS) and Bachelor of Science in Biotechnology (BS) Programs that meet the requirements for the next minor concentration.

BIIN	2150	Introduction to Bioinformatics	4
BIIN	3000	Programming for Bioinformatics	4
BIIN	3220	Biochemistry	3
BIIN	4000	Databanks	4
BIOL	4605	Cellular and Molecular Biology Skills Laboratory	2
BIIN	4010	Computational Biology	3
BIIN	4020	Medical Information	3

The Bayamon Campus is authorized to offer this minor.

Minor in Pre-Medical

The Bayamón Campus is authorized to offer this minor. It is aimed for students of the Natural Sciences programs that meet the prerequisites of the following courses.

Requirements for the Minor in Pre-Medical - 26 credits

BIOL	1102	General Biology II	3
BIOL	1104	Biology Skills Laboratory II	1
CHEM	4220	Biochemistry	4
*GESP or SPAN		Spanish Course	3

*GEEN or ENGL English Course 3

**Twelve (12) credits distributed in courses of Sciences of the Conduct and Social Sciences are required (Sociology, Psychology, Political Sciences, Economics, Ethics and Anthropology).

*Students must complete 3 additional credits in a general Spanish course and 3 additional credits in a general English course, in addition to the 9 credits of the GEP in each area, for a total of 12 credits in Spanish and 12 credits in English. The courses to be taken will be chosen in consultation with the academic adviser or the department director.

**The majority of the medical schools do not accept introductory courses in these areas. The student must check with the Medicine School to which he is applying, before selecting the courses.

Minor in Pre-Veterinary (BS Biology)

This minor concentration in Pre Veterinary provides the most relevant courses and the admission requirements of most veterinary schools in the United States, Canada and the Lesser Antilles. This minor concentration is aimed at students of the Natural Sciences programs The Bayamón Campus is authorized to offer this lower concentration.

Requirements for Minor Concentration in Pre Veterinary - 25 credits

BIOL	3100	Fundamentals of Animal Science	3
BIOL	3200	Fundamentals of Animal Nutrition	3
BIOL	3601	Anatomy and Physiology Compared I	3
BIOL	3602	Anatomy and Physiology Compared II	3
CHEM	4220	Biochemistry	4

* ENGL Two (2) English courses of composition and technical writing 6

** ENGL English course in effective oral communication, in public 3

* The 6 credits of composition and technical writing in English requisite, can be fulfilled with two of the following courses: ENGL 2075, ENGL 2076, ENGL 3007, ENGL 3025, ENGL 3030.

** The 3 credits of effective oral communication or in public in English requisite, can be fulfilled with the course ENGL 3310 or equivalent.

The vast majority of veterinary schools require applicants to have a calculus course in their credits transcription. We recommend interested students to take the course MATH2250 (Calculus for Biology and Environmental Sciences, 3 credits) or MATH2251 (Calculus I, 5 credits) as part of the prescribed distributives of their baccalaureate in Biology. However, it is necessary that the student corroborates with each veterinary school to ensure that all specific application requirements are met for each particular school.

Most veterinary schools require excellent grades in high school courses, high scores on entrance exams (GRE) and work experience in veterinary clinics: (1) pet clinic (dogs and cats), (2) farm veterinary , and (3) exotic animals, zoo, or aquarium veterinary. We recommend that the pre veterinary student seek and participate in opportunities, volunteering or internships that provide this type of experience.

Biomedical Sciences (BS)

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 1500 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	<u>6 credits</u>
Total	119

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 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	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	1104	Biology 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 of the Ponce Campus must include BIOL 4604 among the courses selected to complete the twelve (12) Prescribed Distributive required credits.

Biopsychology (BS)

The Bachelor of Science in Biopsychology is designed to develop the basic competencies related to the study of the biological foundations of human behavior. The program emphasizes the development of an analytical and reflexive capability to address the problems of human behavior within an interdisciplinary context. In addition, it aims to prepare alumni to work or pursue graduate studies in fields related to Biopsychology.

The program of the Bachelor's Degree in Sciences in Biopsychology is designed to develop the core competencies that allow the student to:

Knowledge

Demonstrate knowledge and understanding of:

1. basic knowledge of the concepts, principles and theories related to biology and psychology.
2. the ability to integrate information from multiple sources in biology and psychology relevant to the study of the problems of human behavior.

Skills

1. Apply scientific models or processes in solving problems related to the study of biopsychology.
2. Properly use equipment and materials relevant to the study of biopsychology.
3. Apply the appropriate methodology in solving problems related to biopsychology.

Attitudes

1. Identify ethical situations through appropriately informed and responsible explanations.
2. Demonstrate a critical decision making attitude based on information generated by biopsychological research.

The Metropolitan Campus is authorized to offer this program.

REQUIREMENTS FOR THE BACHELOR IN SCIENCES IN BIOPSYCHOLOGY

General Education Requirements	42 credits
Core Requirements	30 credits
Major Requirements	38 credits
Prescribed Distributive Requirements	12 credits
Elective Courses	<u>3 credits</u>
Total	125 credits

General Education Requirements - 42 credits

Forty-two (42) credits are required as explained in the General Education Requirements for Bachelor's Degrees section. Students are exempt from taking courses in the categories of Scientific and Technological Context, and Health and Quality of Life (GEHP 3000). Students in this program will take GEMA 1200 in the Basic Mathematics Skills category.

Core Requirements - 30 credits

BIOL	1101	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	2100	Introduction to Neurobiology	3
BIPS	1200	General Biopsychology	3
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
MATH	1511	Precalculus I	3

MATH	1512	Precalculus II	3
PSYC	1051	General Psychology I	3

Major Requirements - 38 credits

BIOL	3010	Genetics	3
BIOL	3106	Modern Biology I	4
BIPS	3900	Neuroscience of Human Behavior	3
BIPS	4900	Integrative Seminar in Biopsychology	3
CHEM	2221	Organic Chemistry I	4
CHEM	2222	Organic Chemistry II	4
MATH	2100	Introduction to Probability and Statistics	3
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4
PSYC	3200	Comparative Psychology	3
PSYC	4234	Personality Psychology	3

Prescribed Distributive Requirements - 12 credits

The student will select six (6) credits from the following courses:

BIOL	4200	Neuroscience	3
BIOL	4604	Cell and Molecular Biology	3
BIOL	4494	Pharmacology	3
BIOL	4960	Bioethics	3
MATH	2251	Calculus I	5

Select six (6) credits from the following courses:

PSYC	3100	Learning	3
PSYC	3220	Psychology of Development	3
PSYC	3144	Motivation and Emotion	3
PSYC	3300	Social Psychology	3
PSYC	397_	Special Topics	1-6
PSYC	4213	Psychopathology	3

Elective Courses - 3 credits

Biotechnology (AAS and BS)

Associate Degree Program

The Associate of Applied Science Degree Program in Biotechnology has as its goal the formation of professionals who possess the knowledge, skills and attitudes that will allow them to make responsible contributions to the scientific development of our society and advance biotechnology. To achieve this goal, the Program aims to enrich the knowledge and skills of students in the area of biotechnology by offering basic and intermediate level courses. The Program will prepare students to work in research laboratories and in the development of biosciences. It will also develop students' competencies that will allow them to work in industry or in other agencies as technical personnel with knowledge focused in the area of biotechnology.

Profile of Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know the importance of the interdisciplinary character of biotechnology.
2. Know the foundations of the biological, chemical, physical, mathematical and the informatics processes that are the base of biotechnology.
3. Know the biotechnological processes that can be applied to generate products and services in the medical, environmental, agricultural, and industrial areas, among others.
4. Know the fundamental concepts of live organisms and of microorganisms.
5. Know the genetic processes that are developed in the cell, as well as the structure and function of nucleic acids and their role in genetic information.
6. Know the importance the contributions of biotechnology in the development of knowledge.

Skills

1. Apply the knowledge of biotechnology in basic research in the area.
2. Identify suitable instrumental and informatics technical skills for concrete biotechnological processes.
3. Apply the scientific method, the skills and the basic and complex laboratory techniques for problem solving in the biotechnology area
4. Analyze the processes of the growth of cells and biopolymers for the manufacture of biological products in order that these may meet the principles of quality and with the requirements and regulations that apply to the biotechnological industry.
5. Analyze the principles and the application of the techniques of molecular biotechnology and their benefits for human beings.

Attitudes

- 1 Show appreciation for genetic attributes in their natural form.
2. Value the ethical and moral principles which must govern biotechnology.
3. Show respect for the environment.

The Barranquitas Campus is authorized to offer this program.

ACADEMIC REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN BIOTECHNOLOGY

General Education Requirements	24 credits
Major Requirements	<u>38</u> credits
Total	62

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Contemporary Puerto Rico or	3
GEEC	2000	Entrepreneurial Culture	3

Major Requirements – 38 credits

BIOL	1101	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	2013	Biology Skills Laboratory II	1
BIOL	2153	Biostatistics	3
BIOL	3105	General Microbiology	4
BIOT	2160	Molecular Genetics	3
BIOT	2250	Biomanufacturing	4
BIOT	3250	Molecular Biotechnology	3
MATH	1500	Precalculus	5
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4

Bachelor's Degree Program

The Bachelor of Science degree in Biotechnology aspires to develop professionals with competencies to search for solutions to society's problems, by applying the knowledge and skills of Biotechnology. The curriculum includes the development of skills for the appropriate administration of modern technologies applied to life for the production of consumer goods. The Program promotes the development of a responsible attitude to the processes for decision making related to the environment, bioethics, health and industry. Graduates of this Program will be able to work in the field of biotechnology or in research. They may, also, aspire to continue graduate or professional studies.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

Knowledge and understanding of:

1. The concepts of microbiology, biochemistry, cellular and molecular biology, immunology, genetics and bioinformatics related to the biotechnology area.
2. The techniques applied in biotechnology to solve environmental and clinical situations and to carry out research.
3. The correct use of the technical vocabulary inherent to the field of biotechnology to communicate effectively with scientific, professional and academic communities.
4. The theoretical bases related to the manipulation of nucleic acids, cellular proteins and cultures in research and the labor field.
5. The basic components to write scientific research reports.

Skills

1. Design and carry out experimental procedures at the cellular, molecular and biochemical levels, aimed at understanding the biological processes.
2. Analyze the results obtained when applying purification techniques of proteins, cellular cultures and extraction and analysis of the genetic matter obtained from plants, animals and microorganisms.
3. Write reports using the scientific publication format to present and to reveal the research results.
4. Coordinate and participate the activities of technical work groups to assure the effectiveness of the research processes.
5. Use English and Spanish correctly in oral and written technical communications.
6. Identify and use the information available in databases and the tools of basic bioinformatics for different projects.

Attitudes

1. Demonstrate a bioethics, legal and moral consciousness in decision making in aspects that arise in the area of the biotechnology.
2. Demonstrate responsibility, cooperation and leadership when working in a team in the field of biotechnology.
3. Make a case for the impact of biotechnology in agriculture, environment, industry, health and in general in problem solving.
4. Demonstrate a positive attitude towards self-teaching and the update of the knowledge in regard to the changes occurring in the area of biotechnology.
5. Value the importance of biodiversity and the conservation of ecosystems.

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	45 credits
Major Requirements	45 credits
Related Course Requirements	37 credits
Elective Courses	<u>3 credits</u>
Total	130

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 “Pruebas de Evaluación y Admisión Universitaria (PEAU)” of College Board are exempt from taking GEMA 1200. Students of this Program are exempt from the category of Scientific and Technological Context.

Major Requirements - 45 credits

BIOT	3250	Molecular Biotechnology	3
BIOT	3750	Recombinant DNA Technology	3
BIOT	4620	Tissue Culture and Technical Applications	3
BIOT	4928	Protein Purification and Analysis	3
BIOT	4710	Agricultural and Environmental Biotechnology	3
BIOT	4954	Research Methods in Biotechnology	3
BIOL	1101	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	1104	Biology Skills Laboratory II	1
BIOL	2153	Biostatistics	3
BIOL	3010	Genetics	3
BIOL	3105	General Microbiology	4
BIOL	3405	Immunology	3
BIOL	4433	Industrial Microbiology	3
BIOL	4604	Cellular and Molecular Biology	3

Related Course Requirements - 37 credits

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 - 18 credits

BIOT	3250	Molecular Biotechnology	3
BIOT	3750	Recombinant DNA Technology	3
BIOT	4710	Agricultural and Environmental Biotechnology	3
BIOT	4928	Protein Purification and Analysis	3
BIOL	3405	Immunology	3
BIOL	4433	Industrial Microbiology	3

Business Administration (AAS)

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 online 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		<u>32 credits</u>
	Total	56

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Contemporary Puerto Rico	3
		or	
GEEC	2000	Entrepreneurial Culture	3

Major Requirements - 32 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Business Information Systems	3
ENTR	2200	Fundamentals of Entrepreneurship	3
FINA	2101	Corporate Finance I	3
MAEC	2211	Principles of Economics (Micro)	3
MAEC	2221	Basic Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Business Communication in Spanish	
		or	
OMSY	3040	Business Communication in English	3

Cardio-Respiratory Care (AAS)

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 level. 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.

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.

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 have:
 - a. a minimum average of 2.50
 - b. a negative Criminal Record issued within the last 30 days by the Police of Puerto Rico.
 - c. a certificate of health with one year of validity issued by the Department of Health.
 - d. a Vaccination Certificate against Hepatitis B and Chickenpox, among others, required by the Department of Health of Puerto Rico.
 - e. a Negative Doping Test.

Requirements for Clinical Practice:

To be admitted to a clinical practice agency the requirements are:

1. A negative criminal record issued within the last 30 days by the Police of Puerto Rico.
2. A current health certificate issued by the Department of Health.
3. A certificate 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, such as a current CPR Certificate, Negative Doping Test, and a negative certificate of 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.

Profile of the competencies of Graduates of the Associate Degree in Cardiorespiratory Care (AAS).

This program is designed to develop the competencies that will permit students to:

Knowledge

Demonstrate knowledge and understanding of:

1. The elements of the natural and social sciences and of cardiorespiratory care related to the offering of health services to clients with respiratory problems.
2. The respiratory care required in harmony with the diverse modalities of client care, the family and the community.
3. The procedures and techniques to offer cardiorespiratory care.
4. The pharmacological aspects of the medicines used in clients with cardiorespiratory problems.

Skills

1. Apply the theoretical-scientific concepts and the psychomotor skills in the role as a technician of cardiorespiratory care in different scenarios.
2. Apply the care modalities that they offer in the prevention, promotion, maintenance and restoration of the respiratory health phases of the client.
3. Participate in the development of the care plan and select the equipment they are going to use in providing the client's care.
4. Use effective communication techniques during their interventions with the client, the family and the members of the multidisciplinary team.

Attitudes

1. Assume responsibility for their personal and professional growth while considering technological, social, research and professional changes.
2. Integrate moral values and the ethical, legal and spiritual principles when offering cardiorespiratory care.
3. Show responsibility for their actions when performing their profession.

The Aguadilla and Barranquitas campuses are authorized to offer this Program.

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

General Education Requirements		24 credits
Major Requirements		<u>52</u> credits
	Total	76

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Contemporary Puerto Rico or	3
GEEC	2000	Entrepreneurial Culture	3

Major Requirements - 52 credits

CARD	1130	Cardio-Respiratory Care I	3
CARD	1210	Introduction to Theory and Practice in Cardio-Respiratory Care	3
CARD	1220	Pharmacology Applied to Cardio-Respiratory Care	2
CARD	1231	Cardio-Respiratory Care II	3
CARD	2110	Cardio-Respiratory Pathophysiology I	3
CARD	2120	Diagnosis Tests and Pulmonary Function	2
CARD	2140	Cardio-Respiratory Care and Rehabilitation	3
CARD	2190	Integration of Fundamental Knowledge	2
CARD	2233	Mechanical Ventilation	5
CARD	2234	Practice in Mechanical Ventilation	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

Chemistry (BS)

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.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

To demonstrate knowledge and understanding of:

1. the physical properties and the chemical behavior of the substance based on its composition and structure.
2. the chemical reactions based on their mechanisms and the factors that affect them.
3. the procedures and regulations for the handling, use and disposal of chemical agents.

Skills

1. To demonstrate effective written and oral communication, in English and Spanish and in the analysis of technical texts.
2. To solve qualitative and quantitative problems of chemistry using instrumentation and suitable technology.
3. To interpret experimental data and scientific literature.

Attitudes

1. To act in agreement with the ethical standards and the laws that regulate the practice of the profession.

The Arcibo, Guayama, 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	71 credits
Prescribed Distributive Requirements	6 or 7 credits
Elective Courses	<u>3</u> credits
Total	125 or 126

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 or 2030 in the Scientific and Technology Context category.

Major Requirements - 71 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	General Biology I	3
BIOL	1103	Biology Skills Laboratorio I	1
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, Bayamón, Guayama, 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 approved a minimum of twenty-four (24) credits from the chemistry curriculum (courses CHEM) of which, a minimum of nine (9) credits must be from 3000 or 4000 level courses.

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

Communications (AA and BA)

Associate Degree

The Associate of Arts Degree in Communications provides a basic preparation in the field of social communication, which includes the theoretical perspective, emergent trends, writing skills and production, in addition to research techniques and creative development. The program has been designed with a multidisciplinary curricular content that facilitates the preparation of professionals able to compete in the job market or for self-employment. It permits the student to continue towards the Bachelor of Arts degree in Communications.

Objectives of the Program

The Associate of Arts Program in Communications aims to develop the following general objectives:

1. Generate the theoretical and practical knowledge related to communications, adapted to the changes and new trends of the profession.
2. Analyze the problems of communication by research.
3. Integrate the values and ethical-legal principles related to the field of social communication into professional practice.
4. Develop oral and written communication skills, applied to the diverse communication formats.
5. Apply the knowledge and skills of the discipline to the creative solution of communication problems.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Identify the processes and methods of formal and informal research for the development of social communication projects.
2. Distinguish the formal and informal norms of ethical practice in the communication labor field.
3. Explain the communication platforms for mass and interpersonal use.

Skills

1. Use the language properly, in harmony with the appropriate style for the professional applications.
2. Develop creative projects for the implementation of support activities in social and commercial communication.
3. Use the major and current technologies for the administration of communication in different scenarios.

Attitudes

1. Value the importance of performing the professional work correctly, reasonably filling the expectations of the clients.
2. Exhibit a high degree of ethics and responsibility in the practice of the profession.
3. Show the capacity to solve problems in an innovating and creative form.
4. Demonstrate responsibility and commitment with their professional development.

The Ponce Campus is authorized to offer this program.

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN ARTS IN COMMUNICATIONS

General Education Requirements	24 crédits
Major Requirements	<u>36 crédits</u>
Total	60

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Contemporary Puerto Rico or	3
GEEC	2000	Entrepreneurial Culture	3

Major Requirements - 36 credits

COMU	1000	Introduction to Communications	3
COMU	1010	Fundamentals of Graphic Communication	3
COMU	1020	Introduction to Communication Media	3
COMU	2000	Fundamentals of Journalism	3
COMU	2010	Writing for the Media	3
COMU	2020	Communication and Society	3
COMU	2197	Creative Project	3
COMU	3000	Research Processes in Communication	3
COMU	3021	Production for Multimedia	3
COMU	3970	Current Topics in Communications	3
COMU	4320	Legal and Ethical Aspects	3
MKTG	1210	Introduction to Marketing	3

Bachelor's Program

The Bachelor of Arts Program in Communications aims to provide a theoretical and practical preparation in the field of social communication by emphasizing the areas of public relations and publicity. It includes the knowledge and management of communication media and administrative, research and technical skills. 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.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Identify the processes and methods of formal and informal research for the development of projects of public relations, publicity and management of media.
2. Recognize the formal and informal norms of ethical practice of Public Relations and Publicity, as well as those of related professions.
3. Explain the communication platforms for massive and interpersonal use.

Skills

1. Use language satisfactorily, according to the appropriate style for professional applications.
2. Use research methods for project planning and evaluation.
3. Apply the correct steps for the achievement of the objectives in the efficient and effective accomplishment of a project.
4. Develop innovating strategies and tactics for the achievement of objectives.
5. Use current and leading technologies for the administration of communication in diverse scenarios.
6. Complete professional projects focused on achieving the objectives in a efficient and effective way, demonstrating the use of strategic planning.

Attitudes

1. Value the importance of performing their professional work correctly, reasonably filling the expectations of their clients.
2. Exhibit a high degree of ethics and responsibility in their profession.
3. Show the capacity to solve problems in an innovating and creative manner.
4. Demonstrate responsibility and commitment with their professional development.

The Ponce Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN COMMUNICATIONS IN PUBLIC RELATIONS AND PUBLICITY

General Education Requirements	48 credits
Major Requirements	33 credits
Submajor Requirements	30 credits
Elective Courses	<u>9 credits</u>
Total	120

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 the nine credits in English Communication Skills in the sequences GEEN 1201, 1202, 2203 or 2311, 2312, 2313.

Major Requirements - 33 credits

COMU 1000	Introduction to Communications	3
COMU 1010	Foundations of Graphic Communications	3
COMU 1020	Introduction to Communication Media	3
COMU 2010	Writing for Communication Media	3
COMU 2020	Communication and Society	3
COMU 3000	Research Processes in Communications	3
COMU 3002	Psychology of Communication	3
COMU 3021	Production for Multimedia	3
COMU 4320	Legal and Ethical Aspects	3
BADM 1900	Fundamentals of Management	3
MKTG 1210	Introduction to Marketing	3

Major Requirements - 30 credits

COMU 2000	Fundamentals of Journalism	3
COMU 2030	Foundations of Public Relations	3
COMU 2031	Fundamentals of Publicity	3
COMU 3013	Public Relations Plan	3
COMU 3015	Advertising Projects	3
COMU 3025	Integral Communication of Brand Names	3
COMU 3970	Current Topics in Communications	3
COMU 4920	Internship	6
COMU 4973	Seminar in Public Relations and Publicity	3

Communication in Media Production (BS)

The program of the Bachelor of Science Degree in Communication in Production for the Media provides a theoretical-practice preparation in the production of contents for the media. The areas of the media that are studied are: writing, photography, graphical design, sound, video and the Internet. The program, foments the business area and has an emphasis in the integration of media in harmony with the trends in the communications industry.

Admission Requirements

Students interested in this program must fulfill the admission requirements that appear in the General Catalog. In addition, they must have a minimum high school average of 2.50. Students who initially do not meet the minimum requirements may be admitted provisionally to the program if upon finishing their first year of studies (24 credits), they obtain a minimum general average of 2.50.

Transfer students must have a minimum grade point index of 2.50 to be admitted to the program. Students who initially do not meet the minimum requirements may be admitted provisionally to the program if upon finishing their first year of studies (24 credits), they obtain a minimum general average of 2.50.

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.

Goals of the Bachelor of Science Degree in Communication in Production for the Media

1. To develop a journalist with a high ethical sense that will produce content for different mass media.
2. To develop a journalist with sensitivity and social commitment who will contribute to the advancement of communications.

Profile of the Competencies of Graduates

This program is designed to develop the competencies that will permit students to:

Knowledge

Demonstrate knowledge and understanding of:

1. the foundations, the theory and the ethical, legal and moral aspects, that govern the discipline of communications.
2. the computer programs and the equipment to produce content in the areas of: writing, sound, video, graphic design, photograph and Internet.
3. the basic concepts and the business procedures, the management and the administration for mass media.

Skills

1. To solve problems related to the study field.
2. To apply research techniques to create new knowledge and to solve problems in the discipline.
3. To integrate and apply the fundamental principles of the theory and the technique in the field of communications to real situations of the world of work.

4. To design, produce and transmit quality content with social responsibility.
5. To correctly use the technical vocabulary inherent to mass media and their emergent platforms.
6. To master the use and handling of the computer programs and the equipment to produce content in the areas of: writing, sound, video, graphical design, photograph and Internet.

Attitudes

1. To value the importance of working in teams.
2. To appreciate the cultural the historical patrimony of the country.
3. To demonstrate interest in the technological advances and the changes of the discipline and in the field of communications itself.
4. To recognize the importance of making decisions with responsibility, having in consideration the moral as well as the ethical and legal affairs of the profession.

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	70 credits
Prescribed Distributive Requirements	3 credits
Elective Courses	<u>6 credits</u>
Total	124

General Education Requirements - 48 credits

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

Major Requirements - 70 credits

COMU	1020	Introduction to Communication Media	3
COMU	1025	Introduction to Graphic Production	3
COMU	1031	Photographic Techniques	3
COMU	1035	Creative Writing for Media	3
COMU	1045	Graphic Production for Publications	3
COMU	1051	Sound Production Techniques	3
COMU	2123	Journalistic Writing for the Media	3
COMU	2130	Planning for Media	3
COMU	2340	Television Production Techniques	3
COMU	2513	Design of Visual Identity of Brands	3
COMU	2610	Illumination in Photography	3
COMU	2621	Digital Photographic Manipulation	3
COMU	2613	Radio Production	3
COMU	3040	Video Field Production	3
COMU	3043	Advanced Production for Radio	3
COMU	3345	Administration and Production of Content for Social Media	3
COMU	3410	Production of Multimedia Content for Internet	3
COMU	3521	Advanced Television Production I	3
COMU	4320	Legal and Ethical Aspects	3
COMU	4410	Management and Empresarism for Mass Media	3
COMU	4444	Fundamentals of Media Research	3
COMU	4910	Supervised Practice (Bachelor’s Degree)	4
MAEC	2221	Basic Statistics	3

Prescribed Distributive Requirements - 3 credits

Se requieren 3 créditos adicionales entre los siguientes cursos:

COMU	2520	Advanced Voice and Diction	3
COMU	3050	Seminar on Online Radio Production	3
COMU	3135	Writing of Dramatic Librettos	3
COMU	3140	Graphic Design for Video	3
COMU	3325	Photojournalism	3
COMU	3522	Advanced Production of Television II	3
COMU	4020	Design and Production of a Project for Social Media	3

Minor in Photography

Requirements for the Minor in Photography - 18 credits

The Bayamón Campus is authorized to offer this minor.

COMU	1025	Introduction to the Graphic Production	3
COMU	1031	Photographic Techniques I	3
COMU	1032	Photographic Techniques II	3
COMU	1045	Graphic Production for Publications	3
COMU	2610	Illumination in Photography	3
COMU	2621	Digital Photographic Manipulation	3

Computer Science (AAS and BS)

The Computer Science Program offers the Associate of Applied Sciences in Computer Science, the Baccalaureate of Science in Computer Science, and a Minor in Computer Network. It also offers a Minor in Computer Science for students of other majors.

The Program offers a theoretical and practical preparation aimed to develop professionals focused on the mastery of knowledge related to the technical and diversified areas of the discipline. In addition, it facilitates the development of logical reasoning skills, of analysis for problem solving, programming methodologies and use of tools associated with the computation field.

Associate Degree Program

The Associate of Applied Science in Computer Science is designed to develop the competences that will permit the student to:

Knowledge

Demonstrate knowledge of:

1. the fundamental concepts of computing.
2. the processes of the development of computer systems, including databases and computer networks.

Skills

1. Design and implement programs in high-level languages.
2. Apply computer skills, strategies and mathematical concepts to solve problems.

Attitudes

1. Value in the legal context ethical and moral behaviors proper to the profession.

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

In addition, the Aguadilla Campus is authorized to offer it by means of the online learning modality.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN COMPUTER SCIENCE

General Education Requirements	24 credits
Major Requirements	<u>35 credits</u>
Total	59

General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computing Technologies	3
GEMA 1200	Fundamentals of Algebra	3
GEHS 2010	Historical Process of Contemporary Puerto Rico or	3
GEEC 2000	Entrepreneurial Culture	3

Major Requirements - 35 credits

COMP	2025	Development of Webpages	3
COMP	2120	Programming Logic	3
COMP	2315	Structured Programming	3
COMP	2400	Object Oriented Programming	3
COMP	2501	Discrete Computational Structures I	3
COMP	2800	Databases	3
COMP	2850	Movable Computation	3
COMP	2900	Data Structures	3
COMP	2970	Seminar and Practice	3
COMP	3015	WEB Programming with Databases	3
MATH	1500	Precalculus	5

Bachelor's Degree Program

The Bachelor of Science in Computer Science is designed to develop the competencies that will permit the student to:

Knowledge

Demonstrate knowledge of:

1. the fundamental concepts of computing.
2. the processes of the development of computer systems, including databases and computer networks.

Skills

1. Design and implement programs in high-level languages.
2. Apply computer skills, strategies and mathematical concepts to solve problems.
3. Apply methodologies, tools and techniques for the planning, design and implementation of projects in the areas of Computer Science.

Attitudes

1. Value in the legal context ethical and moral behaviors proper to the profession.
2. Appreciate the importance of computer systems development processes.

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 online 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	65 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>3 credits</u>
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.

Major Requirements - 65 credits

COMP	2025	Development of Webpages	3
COMP	2120	Programming Logic	3
COMP	2315	Structured Programming	3
COMP	2400	Object Oriented Programming	3
COMP	2501	Discrete Computational Structures I	3
COMP	2502	Discrete Computational Structures II	3
COMP	2800	Databases	3
COMP	2900	Data Structures	3
COMP	3015	WEB Programming with Databases	3
COMP	3300	Organization and Computer Architecture	3
COMP	3400	Software Engineering	3
COMP	3500	Operating Systems	3
COMP	3900	Visual Computation	3
COMP	4200	Teleprocessing and Networks	3
COMP	4400	Systems Development and Implementation	3
COMP	4410	Computer Security	3
COMP	4910	Practice and Professional Ethics	3
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
PHYS	3001	General Physics I	4

Prescribed Distributive Requirements - 6 credits

Six (6) credits from the following courses.

COMP	2850	Movable Computation	3
COMP	3600	Computer Graphics	3
COMP	3800	Programming Languages	3
COMP	397_	Special Topics	1-6
COMP	4160	Parallel Processing	3
COMP	4210	Cloud Computing	3
COMP	4415	Forensic Computation	3
COMP	4480	Artificial Intelligence	3
COMP	4580	Introduction to Robotics	3
MATH	2100	Introduction to Probability and Statistics	3

Minor in Computer Science

The Minor in Computer Science is designed to provide students of any discipline knowledge of the theoretical bases of some areas within computer science, with emphasis on the application of algorithms and programming languages, in the development of problem solving.

All campuses that offer the Computer Science Program are authorized to offer this minor.

Requirements for the Minor in Computer Science - 18 credits

COMP	2025	Development of Webpages	3
COMP	2120	Programming Logic	3
COMP	2315	Structured Programming	3
COMP	2800	Databases	3
COMP	2850	Movable Computation	3
COMP	3015	Web Programming with Databases	3

Minor in Computer Networks

The Minor in Computer Networks allows students of the Bachelor of Sciences in Computer Science to expand their knowledge and skills in the area of computer science networks.

This minor may only be taken by students of the Bachelor of Science degree in Computer Science.

The Aguadilla, Arecibo, Barranquitas, Bayamón, Fajardo, Metropolitan and San German campuses are authorized to offer this minor.

Requirements for the Minor in Computer Networks - 18 credits

COMP	397_	Special Subjects	3
COMP	4210	Cloud Computing	3
COMP	4220	Advanced Teleprocessing and Networks	3
COMP	4230	Installation and Configuration of Physical Components for Networks	3
COMP	4235	Operating System for Networks	3
COMP	4240	Network Management	3

Minor in Programming of Mobiles

The Minor in Programming of Mobiles is designed to provide students of the Bachelor of Science Degree in Computer Sciences with the opportunity to extend their knowledge and skills in the theoretical bases of programming of mobiles, with emphasis in a development platform.

The Metropolitan Campus is authorized to offer this minor.

Requirements for the Minor in Programming of Mobiles - 21 credits

MOPR	1000	Introduction to the Technology, Development and Design of Mobile Devices	3
MOPR	2970	Seminar in Programming of Mobile Devices	3
COMP	2120	Programming Logic	3
COMP	2315	Structured Programming	3
SBAD	2110	Introduction to Small Business Administration	3
MOPR	1201	Development of Mobile Applications Android 1	3
MOPR	1202	Development of Mobile Applications Android 2	3
		or	
MOPR	2001	Development of Mobile Applications Apple 1 IOS	3
MOPR	2002	Development Mobile Applications Apple 2 IOS	3
		or	
MOPR	2101	Development of Mobile Applications of Windows Phone 1	3
MOPR	2102	Development of Mobile Applications of Windows Phone 2	3

Computer Technology and Networks (AAS and BS)

Associate Degree

The Associate Degree Program in Applied Sciences in Computer Technology and Networks curriculum integrates knowledge, theories, techniques and practices in the field of network administration with current and emerging technologies. This Program allows the students to acquire a technical capacity according to their interests and aptitudes in a changing society.

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

Proficiency Profile of the Graduates

The Program is designed to develop the competences that allow students to demonstrate:

Knowledge

1. Know the technical vocabulary, organization, architecture, operation and limitations of network systems.
2. Know the fundamental principles of theory and technique in the field of network systems to recognize and solve real situations at work.
3. Know the equipment and network programs of high acceptance in the market.
4. Know the skills of self-learning so that they can continue their professional development in the areas of administration, installation and repair of systems and networks.
5. Know the process for the solution of typical problems in the repair, maintenance, installation of systems and networks and their operation in general.

Skills

1. Apply techniques for recognizing system and network problems.
2. Integrate the planning, design, organization, implementation and administration of networks.
3. Analyze changes in network technology and its application in the business environment.
4. Demonstrate self-learning skills for professional development in systems and networks.
5. Demonstrate the ability to work as a team in real situations in the field of systems and networks.
6. Critically analyze and solve problems of network installation and repair of computerized systems.

Attitudes

1. Express appreciation of the importance of staying updated on systems and networks technology.
2. Show interest in communicating adequately in the vernacular language and in bilingual environments.
3. State the importance of applying ethical principles in the access, use and management of systems and networks.
4. Demonstrate an attitude of commitment to the community by contributing with the knowledge and skills acquired in the field of systems and networks.

The Campuses of Aguadilla, Bayamón, Fajardo, and Guayama are authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN COMPUTER TECHNOLOGY AND NETWORKS

General Education Requirements	24 credits
Major Requirements	<u>41 credits</u>
Total	65

General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computing Technologies	3
GEMA 1200	Fundamentals of Algebra	3
GEHS 2010	Historical Process of Contemporary Puerto Rico or	3
GEEC 2000	Entrepreneurial Culture	3

Major Requirements - 41 credits

COTN 1120	Design of Computer Programs	3
COTN 1131	Electronics I	3
COTN 1210	Computer Mathematics	3
COTN 1220	Data Communication	3
COTN 1230	Microcomputer Operating Systems	3
COTN 2121	Network Administration I	3
COTN 2122	Network Administration II	3
COTN 2132	Electronics II	3
COTN 2150	Implementation of Network Applications	3
COTN 2160	Network Installation and Configuration of Routers and Switches	3
COTN 2210	Diagnostics and Maintenance of Computerized Systems	3
COTN 2230	Network Diagnosis, Maintenance and Service	3
COTN 2910	Practice	2
BADM 1550	Business Management and Organization or	
BADM 1900	Fundamentals of Management	3

Bachelor's Degree

The Bachelor of Science Degree in Computer Technology 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.

Proficiency Profile of the Graduate

The Program is designed to develop the competences that allow the student to:

Knowledge

1. Know the technical vocabulary, organization, architecture, operation and limitations of network systems.
2. Know the fundamental principles of theory and technique in the field of network systems to recognize and solve real situations at work.
3. Know the equipment and network programs of high acceptance in the market.
4. Know the fundamental principles and application techniques in network security.
2. Know the process for the solution of typical problems in the repair, maintenance, installation of systems and networks and their operation in general.

Skills

1. Apply techniques for recognizing system and network problems.
2. Integrate the planning, design, organization, implementation and administration of networks.
3. Analyze changes in network technology and its application in the business environment.
4. Demonstrate self-learning skills for professional development in systems and networks.
5. Demonstrate the ability to work as a team in real situations in the field of systems and networks.
6. Critically analyze and solve problems of network installation and repair of computerized systems.
7. Apply the principles of research in the process of analyzing systems and networks.

Attitudes

1. Express appreciation of the importance of keeping up to date on systems and networks technology.
2. Show interest in communicating adequately in the vernacular language and in bilingual environments.
3. State the importance of applying ethical principles in the access, use and management of systems and networks.
4. Demonstrate an attitude of commitment to the community by contributing the knowledge and skills acquired in the field of systems and networks.
5. Know the skills of self-learning so that you can continue your professional development in the areas of administration, installation and repair of systems and networks.

The Aguadilla, Bayamón, Fajardo and Guayama campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN COMPUTER TECHNOLOGY AND NETWORKS

General Education Requirements	48 credits
Major Requirements	66 credits
Elective Courses	<u>6 credits</u>
Total	120

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

COTN	1120	Design of Computer Programs	3
COTN	1131	Electronics I	3
COTN	1210	Computer Mathematics	3
COTN	1220	Data Communication	3
COTN	1230	Microcomputer Operating Systems	3
COTN	2121	Network Administration I	3
COTN	2122	Network Administration II	3
COTN	2132	Electronics II	3
COTN	2150	Implementation of Network Applications	3
COTN	2160	Network Installation and Configuration of Routers and Switches	3
COTN	2210	Diagnostics and Maintenance of Computerized Systems	3
COTN	2220	Design and Implementation of Web Applications	3
COTN	2230	Network Diagnosis, Maintenance and Service	3
COTN	3300	Architecture of Computerized Systems	3
COTN	3310	Database Analysis and Design	3
COTN	3315	Analysis and Design of Computerized Systems	3
COTN	3971	Emerging Topics in Network Technology	3
COTN	4150	Network Security	3
COTN	4200	Cryptography	3
COTN	4300	Information Systems Management	3
COTN	4910	Practice	3
BADM	1550	Business Management and Organization	
	or		
BADM	1900	Fundamentals of Management	3

Computerized Management Information Systems (AAS)

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.

Profile of the Competencies of Graduates:

This Program is designed to develop the competencies that permit students to:

Knowledge

Demonstrate knowledge and understanding of:

1. the foundations and trends in the field of information technology.
2. the legal implications for the implementation and use of information technologies.
3. the trends in programming languages, databanks, and communications networks.

Skills

1. Program applications using computer languages.
2. Analyze the requirements for the implantation of computer networks in harmony with the needs of the company.
3. Apply analytical techniques that will permit to decision making in a rational and efficient way.
4. Develop projects based on the system development of information cycle and on the use of new technologies.
5. Design databanks that will permit the development of business applications.

Attitudes

1. Demonstrate the attitude and positive characteristics of a professional with leadership.
2. Demonstrate the capacity to perform collaborative work.

The Barranquitas Campus is authorized to offer this Program by both presential and online 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	<u>3 credits</u>
Total	64

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Contemporary Puerto Rico or	3
GEEC	2000	Entrepreneurial Culture	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

ITEC	1100	Introduction to Information Technology	3
ITEC	1200	Programming Algorithms	3
ITEC	2310	Visual Programming in Information Systems	3
ITEC	2450	Development of Web Page	3
ITEC	3130	Database Design and Management	3
ITEC	3350	Telecommunications and Business Networks	3
ITEC	3420	Information System Analysis and Design	3

Corporate Communication (BA)

The Bachelor of Arts program in Corporate Communication is designed to provide students with the skills and the general knowledge on the corporate communication necessary to advance in the different areas of communications. It aspires to prepare specialists able to respond to the social and economic challenges of this field.

The curriculum connects students to the design, structure, management, and analysis of the strategies of communication within the internal and external corporate context. Likewise, it aspires to strengthen corporate strategic thinking in the light of the integrated communications of marketing. The program aspires to fortify the oral and written skills necessary for corporate communication. Theory may be supplemented with an academic-professional internship abroad, and it is required that the corresponding proceedings be conducted through the Office of International Relations of the Campus, with the approval of the department director.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

To demonstrate knowledge and understanding of:

1. the basic concepts of Corporate Communication.
2. the integration of the data and information with the aim of performing different communicative strategies.

Skills

1. To prepare annual plans of image and communication, reputation, culture, social responsibility, brand, publicity at the strategic and operational level.
2. To coordinate the communication of all the levels of direction of the organization with respect to political decisions, rules of action and communication, with vision of the possible social and sectorial impacts.
3. To develop research projects of communication with theoretical, methodologic and technical strength.

Attitudes

1. To respect the ethical aspects of the profession.
2. To value the utility of the programs of action and communication directed to the different strategic communities.
3. To recognize the importance of the oral and written skills in enterprise communication.

The Metropolitan Campus is authorized to offer this program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN CORPORATIVE COMMUNICATION

General Education Requirements	48 credits
Major Requirements	60 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>6 credits</u>
Total	120

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	1000	Introduction to Communication Media	3
COMU	2001	Corporate Communication	3
COMU	2002	Administration of Corporate Communication	3
COMU	2003	Trends in Communication Technology	3
COMU	2030	Foundations of Public Relations	3
COMU	2031	Foundations of Publicity	3
COMU	3001	Strategic Planning	3
COMU	3013	Public Relations Plan	3
COMU	4320	Legal and Ethical Aspects	3
BADM	1900	Fundamentals of Management	3
ENGL	3025	Writing of Professional Documents	3
ENGL	3310	Public Speaking	3
ENTR	2200	Fundamentals of Entrepreneurship	3
ENTR	2212	Social Entrepreneurism	3
INTB	2200	Cultural Awareness in International Business	3
MKTG	1210	Introduction to Marketing	3
MKTG	2220	Marketing Management	3
PSYC	3313	Industrial-Organizational Psychology	3
SPAN	3015	Oral Communication	3
SPAN	3025	Writing of Professional Documents	3

Prescribed Distributive Requirements - 6 credits

The student will take 6 credits from the following courses to complete the credits of the component of prescribed distributive requirements. The course COMU 4494 will be taken outside Puerto Rico.

COMU	3000	Research Processes in Communications	3
COMU	4493	Professional Practice	3
COMU	4494	Academic Internship	3

Criminal Investigation (AA)

The Associate of Arts Degree in Criminal Investigation contains a curriculum that prepares students with the essential elements in criminal research and at the same time prepares them to continue studies in the Bachelor's Degree in Criminal Justice.

The Program emphasizes the essential components of criminal investigation, as well as the operation of the agencies that are in charge of seeing to it that the law is upheld. Students will learn the essential elements of criminal investigation, the constitutional guarantees that protect the defendant, as well as the theories and general foundations related to the criminality and the system of penal justice.

Profile of the Competencies of Graduates

The Associate of Arts Degree Program in Criminal Investigation is designed to achieve the development of professionals with the following competencies:

Knowledge

1. Explain the theories on crime and the criminality.
2. Describe general terms related to the laws and procedures in the penal environment.

Skills

1. Use essential skills in the intervention with those that disobey the law.
2. Make proper use of the principles of criminal investigation.

Attitudes

1. Value the ethical principles that apply to the area of criminal investigation.

Admission Requirements

1. Cumplir con las normas de admisión establecidas en el Catálogo General de la Universidad Interamericana de Puerto Rico
2. Someter un Certificado Negativo de Antecedentes Penales
3. Meet the admission norms established in the General Catalog of Inter American University of Puerto Rico
4. Submit a Negative Certificate of Criminal Records

Graduation Requirements

1. Have a minimum grade point index of 2.25.
2. Pass all major courses with a minimum grade of C.

The Ponce Campus is authorized to offer this Program in a presential manner and online.

REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN CRIMINAL INVESTIGATION

General Education Requirements	24 credits
Major Requirements	<u>36</u> credits
Total	60

General Education Requirements - 24 credits

GESP	Spanish (1101, 1102)	6
GEEN	English (In agreement with the score in the CEEB)	6
GECF	1010 Introduction to the Christian Faith	3
GEIC	1010 Information and Computing Technologies	3

GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Contemporary Puerto Rico or	3
GEEC	2000	Entrepreneurial Culture	3

Major Requirements – 36 créditos

CJUS	1000	Introduction to Criminology	3
CJUS	2070	Human and Civil Rights	3
CJUS	2090	Juvenile Justice System	3
CJUS	2260	Foundations of Criminal Investigation	3
CJUS	3025	Criminal Law	3
CJUS	3027	White Collar Crimes	3
CJUS	3030	Interviews and Interrogations	3
CJUS	3035	Special Criminal Laws	3
CJUS	3250	Criminal Investigation	3
SOCI	1030	Introduction to Sociology	3
SOCI	2080	Criminal Justice System	3
PSYC	1051	General Psychology I	3

Criminal Justice (AA and BA)

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.

Goals of the Program

The Program, among its goals, aspires to:

1. Develop professionals focused on the mastery of knowledge framed in the new trends of the Criminal Justice discipline.
2. Promote the understanding of the problems of criminality and delinquency from their causes and social effects.
3. Promote research and the use of technology as ways of generating the production and construction of knowledge that will result in the improvement of the prevention practices and the interventions that are carried out in the Criminal Justice System.
4. Develop a critical and sympathetic attitude towards the social problems that affect healthy coexistence in society.
5. Develop commitment with the ethical-legal dimension of the professions related to the field of Criminal Justice in its social function.

Objectives of the Program

The Program has as objectives:

1. Generate theoretical, social, psychological and legal knowledge related to the Criminal Justice System, adjusted to the changes and new trends in the profession.
2. Analyze the problems of criminality and juvenile delinquency from its causes and social effects.
3. Use research and the technological advances for the production and construction of knowledge in the areas that make up the field of Criminal Justice.
4. Apply the knowledge and skills of the discipline in problem solving and decision making related to the area of Criminal Justice.
5. Integrate the values and ethical-legal principles related to the field of Criminal Justice to the professional practice

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know the legal, political, psychological and sociological theories and the principles that the profession, as well as the structure and operation of the Criminal Justice System are based on.
2. Know the human and civil rights, and their legal and social implications in the context of the Criminal Justice System.

Skills

1. Apply the criminological theories and the legal principles to the comprehensive study of the relation between the laws and society.
2. Analyze social, legal, economic and ethical implications of white collar crimes and to assume a critical attitude about them.
3. Analyze the legal and social aspects of juvenile delinquency.
4. Apply the scientific methodology and the technological resources to the development of criminal or forensic research.

5. Apply rules, procedures, methods and strategies in problem solving in scenarios related to the Criminal Justice System.

Attitudes

1. Apply ethical-legal values to the field of Criminal Justice.

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.

Graduation Requirements

1. Have a minimum general grade point average of at least 2.50.
2. Pass, with a minimum grade of C, the following general education courses:
 - a. GESP 1101 and 1102
 - b. GEEN 1101 and 1102 or 1201 and 1202 or 2311 and 2312
 - c. GEMA 1000
3. Pass, with a minimum grade of C, all courses that are a part of:
 - a. Core Course Requirements
 - b. Major Requirements

The Aguadilla, Arecibo, 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		<u>15 credits</u>
	Total	63

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEHS	2010	Historical Process of Contemporary Puerto Rico	3
		or	
GEEC	2000	Entrepreneurial Culture	3

Core Course Requirements - 24 credits

CJUS	1000	Introduction to Criminology	3
CJUS	2050	Victims of Crime	3
CJUS	2090	Juvenile Justice System	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 System	3

Major Requirements - 15 credits

CJUS	2070	Human and Civil Rights	3
CJUS	3030	Interviews and Interrogations	3
CJUS	3035	Special Criminal Laws	3
CJUS	3250	Criminal Investigation	3
CJUS	4040	Evidence Management	3

Bachelor's Program

The Bachelor of Arts Degree in Criminal Justice offers two majors: Criminal Investigation and 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.

The Program aims to: a) 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, b) upgrade the preparation of personnel offering services in these areas, c) stimulate students to pursue graduate studies.

Goals of the Program

The Program, among its goals, aspires to:

1. Develop professionals focused on the mastery of knowledge framed in the new trends of the Criminal Justice discipline.
2. Promote the understanding of the problems of criminality and delinquency from their causes and social effects.
3. Promote research and the use of technology as ways of generating the production and construction of knowledge that will result in the improvement of the prevention practices and the interventions that are carried out in the Criminal Justice System.
4. Develop a critical and sympathetic attitude towards the social problems that affect healthy coexistence in society.
5. Develop commitment with the ethical-legal dimension of the professions related to the field of Criminal Justice in its social function.

Objectives of the Program

The Program has as objectives:

1. Generate theoretical, social, psychological and legal knowledge related to the Criminal Justice System, adjusted to the changes and new trends in the profession.
2. Analyze the problems of criminality and juvenile delinquency from its causes and social effects.
3. Use research and the technological advances for the production and construction of knowledge in the areas that make up the field of Criminal Justice.
4. Apply the knowledge and skills of the discipline in problem solving and decision making related to the area of Criminal Justice.
5. Integrate the values and ethical-legal principles related to the field of Criminal Justice to the professional practice

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know the legal, political, psychological and sociological theories and the principles that the profession, as well as the structure and operation of the Criminal Justice System are based on.
2. Know the human and civil rights, and their legal and social implications in the context of the Criminal Justice System.
3. Know the use of statistics applied to the field of social sciences.
4. Know the methodology and the technological resources that serve as support to social-scientific research.

Skills

1. Apply the criminological theories and the legal principles to the comprehensive study of the relation between the laws and society.
2. Analyze social, legal, economic and ethical implications of white collar crimes and to assume a critical attitude about them.
3. Analyze the legal and social aspects of juvenile delinquency.
4. Apply the scientific methodology and the technological resources to the development of criminal or forensic research.
5. Apply rules, procedures, methods and strategies in problem solving in scenarios related to the Criminal Justice System.

Attitudes

1. Recognize the importance of research as an effective means for the production and construction of knowledge in the area of Criminal Justice.
2. Apply ethical-legal values to the field of Criminal Justice.

Practice Requirements

The Practice course in Criminal Investigation or Forensic Investigation is an option within the Prescribed Distributive Requirements. However, the student who decides to take this course must do the practice in Puerto Rico. The availability of the course will depend on the practice centers available to receive students.

The practice may be substituted by an investigation project in the criminal investigation or forensic investigation areas. In the cases where the student has documented experience in the field of criminal justice, the substitution will be subject to the following:

1. The student must have worked full-time for a period of two (2) years within the five (5) years immediately prior to the application date.
2. The experience that is going to be confirmed is related to the practice in the area of the student's major and to the criteria established by the University to approve this practice.

Students who are candidates for the Practice 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 certification from the department to the Registrar.

In addition, students must meet the requirements stipulated by the practice center.

Graduation Requirements

1. Have a minimum general grade point average of at least 2.50.
2. Pass, with a minimum grade of C, the following general education courses:
 - a. GESP 1101, 1102 and 2203
 - b. GEEN 1101, 1102 and 1103 or 1201, 1202 and 1203 or 2311, 2312 and 2313
 - c. GEMA 1000
3. Pass, with a minimum grade of C, all the courses that are a part of:
 - a. Core Course Requirements,
 - b. Major Requirements and
 - c. Prescribed Distributive Requirements

The campuses authorized to offer the majors of this Program are:

- 1) Criminal Investigation: Aguadilla, Arecibo, Barranquitas, Fajardo, Guayama, Metropolitan, Metropolitan Campus' University Center in Caguas, Ponce, San Germán
Criminal Investigation online: Aguadilla, Ponce
- 2) Forensic Investigación: Aguadilla, Barranquitas, Bayamón, Ponce

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN CRIMINAL JUSTICE

General Education Requirements	48 credits
Core Course Requirements	40 credits
Prescribed Distributive Requirements	6 credits
Major Requirements	21 credits
Elective Courses	<u>6 credits</u>
Total	121

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 one course, from the following alternatives in the Historic and Social Context category: 4020 or 4030.

Core Course Requirements - 40 credits

CJUS	1000	Introduction to Criminology	3
CJUS	2050	Victims of Crime	3
CJUS	2090	Juvenile Justice System	3
CJUS	3025	Criminal Law	3
CJUS	3027	White Collar Crimes	3
CJUS	3300	Alternate Methods in the Resolution of Conflicts	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	3
CJUS	4500	Social Scientific Research Methodology	4

Prescribed Distributive Requirements - 6 credits from the following courses:

CJUS	1010	Police and Community	3
CJUS	2010	Criminal Procedures in Justice Systems	3
CJUS	2075	Social Deviation	3

CJUS	2080	Criminal Law, Science and Environment	3
CJUS	2095	Ethics in Processes of Prevention and Police Intervention	3
CJUS	3015	Women Faced with Crime	3
CJUS	3055	Federal Jurisdiction	3
CJUS	3085	Criminal Law and Immigration	3
CJUS	397	Special Topics*	3
CJUS	4020	Alcoholism and Drug Addiction	3
CJUS	4914	Practice in Criminal Investigation or	
CJUS	4915	Practice in Forensic Investigation	3
PSYC	4213	Psychopathology	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. In addition, students of the major in Forensic Research cannot select this course as a Prescribed Distributive course because the course is a major requirement.

Major Requirements - 21 credits

At least one of the following majors is required:

Criminal Investigation

Criminal Investigation - 21 credits

CJUS	2070	Human and Civil Rights	3
CJUS	3030	Interviews and Interrogations	3
CJUS	3035	Special Criminal Laws	3
CJUS	3250	Criminal Investigation	3
CJUS	4035	Modern Technology in Criminal Investigation	3
CJUS	4040	Evidence Management	3
CJUS	4060	Fraud Detection and Management	3

Forensic Investigation

Forensic Investigation - 21 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	397_	Special Topics	3
CJUS	4014	Data Analysis for Forensic Investigation	3

Minor in Criminal Investigation

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

This minor is for students of majors other than Criminal Justice.

Requirements of the Minor in Criminal Investigation - 18 credits

CJUS	2070	Human and Civil Rights	3
CJUS	3025	Criminal Law	3
CJUS	3027	White Collar Crimes	
		or	
CJUS	2090	Juvenile Justice System	3
CJUS	3030	Interviews and Interrogations	3
CJUS	3250	Criminal Investigation	3
SOCI	2080	Criminal Justice System	3

Minor in Forensic Investigation

The Aguadilla, Arecibo, Bayamón, and Ponce campuses are authorized to offer this Minor.

Requirements of the Minor in Criminal Investigation - 18 credits

CJUS	1000	Introduction to Criminology	3
CJUS	2010	Criminal Procedures in Justice Systems	3
CJUS	2205	Oral and Written Communication for Forensic Investigation	3
CJUS	3241	Forensic Investigation I	3
CJUS	3242	Forensic Investigation II	3
CJUS	4014	Data Analysis for Forensic Investigation	3

Minor in Penology

The Aguadilla, Arecibo, Barranquitas, Fajardo, Guayama, and Ponce campuses are authorized to offer this Minor.

This minor is available for students of Criminal Justice and other majors.

Requirements of the Minor in Penology - 18 credits

CJUS	1000	Introduction to Criminology	
		or	
CJUS	2070	Human and Civil Rights	3
CJUS	3025	Criminal Law	3
CJUS	3040	Penology	3
CJUS	3045	Rights of the Correctional Population	3
CJUS	3060	Correctional Administration	3
SOCI	2080	Criminal Justice System	3

Criminology (BSS)

The Program leading to the Bachelor of Social Science degree with a major in Criminology is designed to develop professional that can offer services in communities, private organizations and governmental agencies. This knowledge is based on sociological, psychological, philosophical and criminological concepts and principles.

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.

Graduation Requirements

1. Have a minimum general average of 2.50
2. Approve with a minimum grade of C the following GEP courses:
 - a. GESP 1101 and 1102
 - b. GEEN 1101 and 1102 or 1201 and 1202 or 2311 and 2312
 - c. GEMA 1000
3. Approve with minimum grade of C all the courses that form part of:
 - a. Core course Requirements
 - b. Major Requirements

Profile of Competencies of Graduates

The Program is designed to develop the competencies that will permit students to:

Knowledge

To demonstrate knowledge and understanding of:

1. the historical, theoretical and scientific development of criminology.
2. the distinction between deviated, antisocial and criminal conduct.
3. the philosophical and theoretical bases of social-scientific, criminological research.

Skills

1. Integrate the psychological, sociological and philosophical theories to study of the criminal.
2. Use the technological, research and social-scientific tools in criminological work.
3. Develop strategies of prevention, intervention and treatment of the criminal.
4. Identify psycho-social factors related to the antisocial, deviated and criminal behaviors.

Attitudes

1. Exhibit a high ethical degree and responsibility and commitment with the profession.
2. Recognize the continuous learning as determining factor for criminological work.
3. Show esteem towards the institutions involved in the prevention, intervention and criminal treatment.

The Ponce Campus is authorized to offer this Program through online learning only.

REQUIREMENTS FOR THE BACHELOR OF SOCIAL SCIENCE DEGREE WITH A MAJOR IN CRIMINOLOGY

General Education Requirements	48 credits
Core Course Requirements	31 credits
Major Requirements	40 credits
Elective Courses	<u>3 credits</u>
Total	122

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 - 31

CJUS	1000	Introduction to Criminology	3
CJUS	3027	White Collar Crime	3
SOCI	1030	Introduction to Sociology	3
SOCI	4600	Human Rights and Society	3
POLS	1011	Introduction to Political Science	3
PSYC	1051	General Psychology I	3
PSYC	1052	General Psychology II	3
PSYC	2010	Developmental Psychology	4
PSYC	3300	Social Psychology	3
PSYC	4213	Psychopathology	3

Major Requirements - 40 credits

CRIM	2010	Sociology of Law	3
CRIM	2020	Victimology	3
CRIM	2100	Penology and Society	3
CRIM	2200	Language, Society and Criminality	3
CRIM	3000	Informatics and Criminality	3
CRIM	3014	The Media and Crime	3
CRIM	3020	Statistical Methods Applied to Criminology	3
CRIM	3021	Diversity and Criminality	3
CRIM	3500	Philosophy of Criminological Knowledge	3
CRIM	4015	Criminological Social Research	4
CRIM	4020	Terrorism and Society	3
CRIM	4030	Contemporary Social Problems	3
CRIM	4970	Contemporary Theoretical Debates in Criminology	3

Culinary Arts and Gastronomic Sciences (AA)

The Associate of Arts Degree in Culinary Arts and Gastronomic Sciences is designed to offer students the knowledge and technical skills necessary for culinary development at the local level as well as the global level. The academic and applied activities provide students with the necessary competencies for the selection, handling and conversion of raw materials, the identification of flavor profiles and the operations in gastronomic industry, generally. The program is designed on the basis of the foundations and theories of the gastronomy sciences and the viable enterprise practices with a robust practice component in kitchen laboratories.

Admission Requirements

1. Meet all the admission norms established in the General Catalog.
2. To be a candidate for admission to the Associate of Arts Degree in Culinary and Gastronomic Sciences, a certificate of health, current for one year, submitted by the Department of Health, is required.

Note:

To be admitted to a practice center, a certificate of health, current for one year, submitted by the Department of Health, is required.

Some centers have additional requirements. Students are responsible for complying with any other requirement that is required by the practice center.

Profile of the Competencies of Graduates

The Associate of Arts Degree in Culinary and Gastronomic Sciences Program, is designed to develop the competencies that will permit students to:

Knowledge

To know and to understand:

1. the theoretical and practical foundations of the culinary and gastronomical sciences within the discipline.
2. the process of selection and correct use of the tools and equipment commonly used in food elaboration related to the field of gastronomy.
3. the essential functions of the operation and administration of organizations that comprise the gastronomy field.

Skills

1. Properly select the raw materials most used in the field of gastronomy.
2. Apply the traditional methods, as well as those of vanguard, in the development of technical skills for the correct handling of the equipment, tools and technologies most used in the discipline of gastronomy.
3. Apply the main practices of cleaning and security in food preparation in agreement with the standards of health and security, as well as with the regulations that apply to the field of gastronomy.

Attitudes

1. Integrate to the professional practice the ethical and legal values and principles related to the field of culinary and gastronomical sciences.
2. Show a proactive attitude towards team work as an effective and productive means for the solution of problems related to the culinary and gastronomical disciplines.

The Barranquitas Campus is authorized to offer this Program.

ACADEMIC REQUIREMENTS OF THE ASSOCIATE OF ARTS DEGREE IN CULINARY ARTS AND GASTRONOMIC SCIENCES

General Education Requirements	24 credits
Major Requirements	<u>41 credits</u>
Total	65

General Education Requirements – 24 credits

Twenty-four (24) credits are required as established in the General Catalog in the section “General Education Requirements for Associate Degrees”. Students of this Program will take GEMA 1000 in the category of Basic Skills in Mathematics.

Major Requirements – 41 credits

GASC	1000	Culinary Fundamentals	3
GASC	1200	Selecting Raw Materials	3
GASC	2010	Culinary Skills I	4
GASC	2015	Nutrition and Culinary Horticulture	3
GASC	2020	Culinary Skills II	4
GASC	2500	Puerto Rican Gastronomy	3
GASC	2800	Complementary Bread Baking	3
GASC	2900	Global Cuisine	3
GASC	2910	Professional Practicum	4
FSMT	1210	Sanitation and Security in Food Services	1
FSMT	1220	Service Theories and Practices	2
FSMT	2101	Purchasing Systems, Inventory and Storage Control	2
FSMT	2104	Buffet and Catering Service	3
TURI	3300	Foods and Services Management	3

Design (BA)

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.

Profile of the Competencies of Graduates:

The program is designed to permit the development of the following competencies:

Knowledge

Demonstrate knowledge and understanding of:

1. Understand the fundamentals of the project design at varied levels and complexity.

Skills

1. Perform drawing by a raised hand and technical drawing as foundations of the formal and structural design of aesthetically functional projects.
2. construct two-dimensional and three-dimensional forms, in digital platforms.
3. perform the diverse techniques, materials (ceramic, wood, plastic and others) and equipment for the attainment of projects of a diverse level and complexity in design.
4. create innovating proposals that foster impresarios and self-employment in design.

Attitudes

1. appreciate the value, use and esthetic sense of the creative process.
2. value the historiography of art and design from a transcultural perspective, in the conceptual and creative construction of projects.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN DESIGN

General Education Requirements	48 credits
Major Requirements	57 credits
Prescribed Distributive Requirements	12 credits
Elective Courses	<u>3 credits</u>
Total	120

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

DSGN	1010	Foundations of Design	5
DSGN	1040	Drawing as a Foundation for Design	3
DSGN	2000	Chronology of Design	3
DSGN	2010	Ephemeral Construction	3
DSGN	2020	Bidimensional Design	5
DSGN	2030	Basic Digital Design	4
DSGN	2033	Three-dimensional Design I	5
DSGN	2034	Three-dimensional Design II	5
DSGN	3400	Entrepreneurial Development in Design	3
DSGN	3510	Specialized Workshop	4
DSGN	4050	Development of Portfolio	4
DSGN	4921	Project in Design I	5
DSGN	4921	Project in Design II	5
ENTR	2200	Fundamentals of Entrepreneurship	3

Prescribed Distributive Requirements – 12 credits

Select 12 credits from the following

ARTE	2403	History of Art	3
DSGN	3000	Surface Design, Techniques and Materials	3
DSGN	3110	Applied Tridimensional Design, Techniques and Materials	3
DSGN	3200	Principle of 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 Videogames (BS)

The Bachelor of Science Degree in Design and Development of Videogames offers students a theoretical and practical preparation adapted for the complex and competitive world of the videogames industry. The skills and techniques learned in this program will help students to design and develop tools (videogames) that help others in different stages of their lives, such as education, learning, health, family cohesion, artistic expression, and the acquisition of social consciousness.

In addition, students will learn to work in a multidisciplinary environment where they will recognize the importance of good communication and team work. They will also learn, to appreciate, recognize and understand the work and effort of all participants of a work group.

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 Videogame with a minimum grade of B.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge and Understanding of:

1. The fundamental concepts of the design and development of videogames.
2. Terms used to describe several aspects of digital visual art.
3. The different processes in the development of videogames.

Skills

1. Prepare and write a document on design of a videogame.
2. Create and to use game engines and other tools to develop videogames.
3. Use the concepts, tools and techniques learned to recognize the artistic, logistics and commercial aspects behind the design of videogames.
4. Apply to basic principles of visual art in the design and creation of images.
5. Apply concepts of modern physics in the development of videogames.
6. Apply concepts of artificial intelligence in the development of videogames.
7. Develop video-games with bidimensional graphs (2D) and three-dimensional (3D).
8. Identify the criteria necessary to be able to make appropriate decisions in the process of the development of a videogame in the conceptual aspects, as well as in its organizational aspects.
9. Identify the challenges that the industry of videogames faces.

Attitudes

1. Recognize the importance of good communication and team work in multidisciplinary teams.
2. Adopt new technological paradigms.

The Barranquitas, Bayamón and Fajardo campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN DESIGN AND DEVELOPMENT OF VIDEOGAMES

General Education Requirements	48 credits
Major Requirements	65 credits
Prescribed Distributive Requirements	9 credits
Elective Courses	<u>6 credits</u>
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 Oriented 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 Videogames	4
GAME	1100	Design of Videogames	3
GAME	3101	Videogame Programming I	3
GAME	3102	Videogame Programming II	3
GAME	3103	Videogame Programming III	3
GAME	3201	Graphics of Videogames I	3
GAME	3202	Graphics of Videogames II	3
GAME	3203	Graphics of Videogames III	3
GAME	4100	Project: Design, Development and Publication of a Videogame	3

Prescribed Distributive Requirements 9 credits

Select 9 credits from the following courses

GAME	1200	Interactive Narrative for Videogames	3
GAME	3400	Artificial Intelligence for Videogames	3
GAME	4300	Emerging Issues in the Field of Videogames	3
GAME	4400	Videogame Development for Consoles and Portable Equipment	3
GAME	4500	Emulators	3
GAME	4910	Internship: Experience in the Videogames Industry	3

Minor in Design and Development of Video-games

The Bayamón Campus is authorized to offer this minor.

Requirements for the Minor in Design and Development of Videogames - 18 credits

GAME	1100	Design of Videogames	3
GAME	3101	Videogame Programming I	3
GAME	3102	Videogame Programming II	3
GAME	3201	Graphics for Videogames I	3
GAME	3202	Graphics for Videogames II	3
GAME	3400	Artificial Intelligence for Videogames	3

Digital Graphic Design and Multimedia (BS)

The Bachelor of Science degree in Digital Graphic Design and Multimedia provides students the principles, concepts and practices of industry, publicity and communications. It is based on the development of professionals of visual communication prepared to manage new ways to offer services, plan, design, and communicate ideas and graphic messages in a clear and effective manner. It prepares them to make use of interactive electronic mediums in a world that is becoming more and more complex and competitive due to the development of new digital technology and the globalization of markets.

Profile of the Competencies of Graduates:

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know the foundations and stages of the design process from the conception of an idea to its representation, development and implementation.
2. Know the fundamental guides that govern the esthetic order of visual communication, in addition to the formal elements and computer principles of a graphical composition.
3. Demonstrate knowledge of the methodologies and processes of the creation of images and the traditional and digital techniques of graphical expression.
4. Have universal historical, ethical, legal and marketing knowledge to be able to communicate effective messages within the framework visual.
5. Know the theories of the new means and new technologies in the artistic context.

Skills

1. Apply in a creative form the processes, skills, materials, techniques, styles of representation, and technology, as well as the historical knowledge, critiques and theoretical knowledge in the problem solving of design and visual communication.
2. Make creative and innovating proposals of design in different formats and bases, that respond properly to specific objectives with esthetic and functional criteria, satisfying the needs of the client and the exigencies of the market.
3. Form the concept, plan, design and implement projects of communication with different degrees of complexity in the different areas of graphical design application.

Attitudes

1. Demonstrate a deep critical awareness and reflection of the pieces of visual communication when considering their meaning, interpretation, diffusion and their ways of production, with criteria that will permit the interpretation of how these influence society and the environment.
2. Demonstrate esthetic sensitivity and creative ability that reflect originality and innovation with solid ethical and humanistic values.
3. Show awareness of the ecological impact of the means of graphical production and of the conservation of the planet.

The Aguadilla and Fajardo campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN DIGITAL GRAPHIC DESIGN AND MULTIMEDIA

General Education Requirements	48 credits
Major Requirements	72 credits
Elective Courses	<u>3 credits</u>
Total	123

General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section “General Education Requirements for Bachelors’ Degrees.” The students of this Program will take course GEST 2020 (The Natural Environment and the Human Bieng) in the Scientific and Technological Context category, and course GEHS 3050 (Human Formation, Society, and Culture) in the Historic and Social Context category.

Major Requirements - 72 credits

DGDM	1101	History of Graphic Design	3
DGDM	1103	Foundations of Graphic Design	3
DGDM	1104	Analysis of Graphic Media	3
DGDM	1201	Digital Photographs Applied to Graphic Design I	3
DGDM	1202	Digital Photographs Applied to Graphic Design II	3
DGDM	2201	Digital Graphic Design I	3
DGDM	2202	Digital Graphic Design II	3
DGDM	2203	Design and Digital and Graphic Typesetting	3
DGDM	2204	Introduction to Multimedia Design	3
DGDM	2205	Semiotics and Graphic Communication	3
DGDM	2206	Writing for the Digital Format and Video Production	3
DGDM	3014	Corporate Identity Design and Visual Identity	3
DGDM	3015	Packaging Design and Displays	3
DGDM	3016	Principles of Animation	3
DGDM	3021	Design and Multimedia Production I	3
DGDM	3022	Design and Multimedia Production II	3
DGDM	4003	Ethical and Legal Principles of Graphic Communication	3
DGDM	4004	Administration and Marketing of Graphic Media	3
DGDM	4005	Professional Seminar	3
DGDM	4006	Design and Production of the Digital Professional Portfolio	3
DGDM	4007	Advertising Campaign Seminar	3
DGDM	4013	Publishing Design	3
DGDM	4014	Animation and Three-dimensional Graphics (3D)	3
DGDM	4910	Practice	3

Education (BA and Certificate)

The Teacher Education Program (TEP) of Inter American University of Puerto Rico (IAUPR) constitutes an answer to the needs and aspirations of a society in constant change and to the requirements of the Certification of Teachers Regulations of the Puerto Rico Department of Education. For this, it takes as its basis the Vision, the Mission and the Goals of IAUPR, the University's conception of an educated person, the Professional Standards of Teachers adopted by the Puerto Rico Department of Education, and the "Standards of Accreditation" of the Council for the Accreditation of Educator Preparation (CAEP).

Theoretical and Methodological Frame of the TEP

The Teacher Education Program has a psycho philosophical foundation of a behaviorist, constructivist and humanist character. This approach can be considered as an eclectic conceptual model, which allows the Program to integrate, in an organized way, principles of the three theoretical frames in its curricular designs and in its pedagogical practice leading to the formation of the future teacher. This frame of theoretical and methodological reference will serve as a guide of the TEP for decision making and actions related to its development and its curricular revision and assessment processes, in harmony with the highest standards of quality and educational excellence.

It could be indicated, that although the TEP is based on an eclectic conceptual paradigm, it gives more emphasis to the constructivist and humanist theoretical perspectives. Under the constructivist perspective the aspiring teacher is considered as an active and totally reflective person in his professional formation process. On the other hand, the humanist approach orients the educational process of the future teacher towards his integral development as a being human, in such a way, that he contributes his competencies of knowledge, skills, attitudes and values to improve the quality of life of his students and society.

It is important to mention that during the last half of the last century, and during the part of the current century that has past, education in Puerto Rico has been framed, generally, in two learning theories: the behavioral theory and the cognitive theory. In the last decades the idea of a constructivist approach in learning and in the curriculum has acquired particular interest among educators. The psychological frame of constructivism is delimited by cognitive theories of learning, and within the curriculum of the TEP, it is founded on a humanist basis of education.

From the perspective of the philosophy and psychology of education, constructivism presents a coherent explanation of how a person learns by means of an active process of construction of knowledge through significant experiences, whereas the humanist vision in the curriculum promotes the professional and social commitment of the future teacher to attend to the educational needs and interests of the diverse student populations, with sensitivity. This implies that all teacher education programs must provide a wide variety of educational experiences for the academic formation of the aspiring teachers, directed toward the maximum development of a pedagogical culture. These practical and formative educational experiences will permit the future teacher to establish a connection between the theoretical knowledge and the pedagogical practice, in a pertinent context of human formation.

In order to give direction to its vision, mission and declaration of goals statements, the TEP uses the professional standards of teachers established by the Puerto Rico Department of Education and by the CAEP. These standards have as their main purpose to delineate the professional characteristics that the teacher must have to achieve that the students develop, in an integral way, their capacities and potentialities to the maximum in all dimensions as human beings, within a context of a culture of peace and acceptance of diversity. In addition, these standards establish the indicators of the qualities that the teachers must have to facilitate their students' learning of knowledge, skills and attitudes. It is important to indicate that the standards also serve the teacher as parameters for him to reflect on his continuous professional development and how this must be in harmony with the learning needs of his students.

In synthesis, the task of educational formation is a complex one and is a great social responsibility. In order to assume this responsibility, the TEP has designed a curriculum focused on how to prepare the teachers that society needs and demands, as an effective means to improve its quality of life.

Vision of the TEP

The Program aspires to develop a series of integrated educational experiences, focused on the professional formation of a teacher of excellence. That is to say, that the teacher will contribute to the educational scenario with his professional competencies of knowledge, skills and attitudes necessary to promote changes and answers adapted to the educational environment. Primarily, the Program aims to prepare a teacher, who is knowledgeable of the problems of education in Puerto Rico and in other countries, in such a way that he will be able to collaborate in the process of constructive changes that will improve his quality of life and that of others.

Mission of the TEP

The Program is directed to the formation of teachers within a curriculum that provides an accumulation of articulated experiences which, at the same time, provides space for the construction of the pedagogical knowledge and content that will develop the future teacher. These experiences will be characterized by continuous reflection, practice in real scenarios, research, collaboration, relevance of the contents, pedagogical modeling and the search and use of means that will provide solutions to the typical problems of the teaching-learning processes in different contexts. In this curriculum the components of the general education, core and major courses will be integrated.

Goals of the TEP

In harmony with the vision and the mission for the TEP, the following goals, in coherence with the profile of competencies of graduates of the Program, are established.

1. Develop educational professionals focused on the mastery of the knowledge of the discipline within the context of a scientific, pedagogical and humanist culture.
2. Promote research, the management of information and the use of technology as means to generate the production and construction of knowledge that will result in the improvement of pedagogical practice within the education system.
3. Develop education professionals, who are sensitive to the needs and interests of the diverse social groups that exist in the population, within a context of human transformation.
4. Promote the solution of problem related to the educational environment within the frame of ethical, legal and social responsibility that regulates the profession.
5. Develop educational leaders committed to their professional development as a means to promote a better pedagogical practice and, therefore, a better quality of life within the context of a culture of peace.

General Objectives of the TEP

The Program aims to achieve the following general objectives:

1. Apply, in an integrated manner, theoretical and methodological knowledge to the pedagogical practice in the educational scenario.
2. Use research, the sources of information and technological advances on which to base the development of educational innovations.
3. Show an attitude of acceptance and sensitivity to the educational needs and interests presented by the diverse student populations.
4. Apply the ethical, legal and social dimensions in the processes of problem solving and decision making related to the practice of the profession in the different educational scenarios.
5. Show commitment to the continuous improvement of the required professional competencies in the field of education.

Profile of the Competencies of Graduates of the TEP

This Program is designed to develop the general competencies, tied to the core courses that will permit students to:

Knowledge

To know and understand:

1. The philosophical, psychological and sociological foundations that serve as a base for education and give direction to the pedagogical practice.
2. The processes of construction of cognitive, affective and psychomotor learning through the different stages of human development.
3. The importance of the creation of a harmonious physical and social environment that is adjusted to the diversity of the social groups and to the individual needs and interests of the students.
4. The laws, regulations and procedures of the educational system, as well as the ethical, legal and social implications of their professional performance.
5. The implications and importance of the integration of parents and other sectors of society in the educational task of the school community.

Skills

1. Integrate into the pedagogical practice the theoretical principles that serve as the basis for education.
2. Plan student learning by integrating educational strategies with a scientific base into instructional design.
3. Use a variety of teaching strategies to facilitate the effective learning of the complexity of the concepts, skills and attitudes of the subject matter they teach.
4. Apply the complementary processes of evaluation, assessment and measurement to determine the effectiveness of the teaching-learning processes and make decisions, which facilitate the improvement of all students' learning.
5. Apply research and the technological advances as resources to expand knowledge and to innovate and improve the pedagogical practice.
6. Use the existing computerized and educational resources to integrate technology in their teaching area or discipline.
7. Use a variety of educational and technological resources to facilitate learning in diverse student populations.
8. Use communication skills in an effective way to develop in the students the understanding of how they learn.

Attitudes

1. Show respect and tolerance to individual and cultural differences of students in the educational scenario.
2. Show a positive and binding attitude between professional development and the academic needs of the students.
3. Show a critical and creative attitude towards the management of information available in different sources related to the teaching discipline and to the field of education.
4. Assume leadership roles and professional responsibility in the different educational scenarios and communitarian contexts to promote learning and the integral development of students.

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.

Accreditation

The Teacher Education Program is accredited by the “Teacher Education Accreditation Council” (TEAC), as follows.

Campus	Accreditation period
Aguadilla	4/2015 to /2022
Arecibo	6/2013 to 6/2020
Barranquitas	10/2012 to 10/2019
Fajardo	2/2012 to 2/2019
Guayama	5/2013 to 5/2020
Metropolitan	2/2012 to 2/2019
Ponce	10/2012 to 10/2019
San Germán	6/2012 to 6/2019

Admission Requirements for the Teacher Education Program

All students admitted to the University that wish admission to the Teacher Education Program (TEP) will receive a Provisional Admission to the major of their interest until they satisfy the admission requirements of the TEP.

To be admitted or readmitted to the Teacher Education Program (TEP), students must fulfill the following requirements:

1. Have a minimum academic point average of 2.50 at the university level.
2. Have approved the following courses with a minimum grade of B.
 - a. EDUC 1080 (Field Experience in the Educational Scenario I), or its equivalent.
 - b. EDUC 2021 (History and Philosophy of Education) or EDUC 2022 (Society and Education) or EDUC 2031 (Developmental Psychology).
 - c. GESP 1101 (Literature and Communication: Narrative and Essay) and 1102 (Literature and Communication: Poetry and Theater).
 - d. A course in English at one of the following levels of English.
 - 1) Basic Level: GEEN 1101 and 1102 (English as a Second Language I and II)
 - 2) Intermediate Level: GEEN 1201 and 1202 (Development of English through Reading I) or GEEN 1202 (Development of English through Reading II).
 - 3) Advanced Level: GEEN 2311 (Reading and Writing) and 2312 (Literature and Writing).

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) or GEEN 2312 (Literature and Writing).

- Students will have two (2) semesters or three (3) trimesters, from the Provisional Admission to the TEP, 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:

- 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 and EDUC 2890 - Field Experience in the Educational Scenario II.
- Students in online learning courses that require visits to schools must make the corresponding arrangements prior to registering in the courses.
- The online learning students of the teacher education program, who are candidates to take the courses of Clinical Experiences in Educational Scenario I and II, will take them in those schools designated by the University as Practice Centers. If there is no practice center available at their place of residence, the student must take them in the designated centers in Puerto Rico.

Satisfactory Academic Progress Requirements for the TEP

- To remain in the Teacher Education Program, students must comply with the Satisfactory Academic Progress Norm as established below:

Required academic index in the Teacher Education Programs, from 121-128 credits.

Percent (%) of approved credits	Progressive academic index
0-36	2.50
37-55	2.75
56-74	2.90
75-100	3.00

Required academic index in the Teacher Education Programs, from 130-137 credits.

Percent (%) of approved credits	Progressive academic index
0-34	2.50
32-52	2.75
53-69	2.90
70-100	3.00

Required academic index in the Teacher Education Programs, from 138-147 credits.

Percent (%) of approved credits	Progressive academic index
0-32	2.50
33-48	2.75
49-64	2.90
65-100	3.00

- Student must comply with the institutional norm of credits attempted and approved.
- Students that do not comply with the Satisfactory Academic Progress Norm of the University will be subject to the provisions established in said norm.

Admission Requirements for the Course Clinical Experiences in the Educational Scenario II (EDUC 4013) or Practice Teaching in the TEP.

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 general academic point average of 3.00.
4. Have a minimum general academic point average of 3.00 in the Major.
5. Submit the Application for Admission to Practice Teaching in the TEP and have the approval of the Coordinator or the Practice Teaching Supervisor.

Students in online programs that are candidates for practice teaching must adhere to the requirements established in this Catalog and the regulations of the Department of Education of Puerto Rico. In the case of nonresidents of Puerto Rico, these must inquire on the procedures established in their place of residence and complete the proper proceedings. The location of the clinical experience courses will be subject to the approval of the Institution as well as of the pertinent school authorities.

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 academic grade point average of 3.00.
2. Have obtained a minimum academic grade point average of 3.00 in the major.
3. Have obtained 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
2011-2014	2.80
2014-2015 and beyond	3.00

Teacher Certification

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. This applies to students who aspire to be certified by the traditional route, the alternating route or by recertification.

Likewise, students who wish to obtain a teaching certification of another territory, state of the United States of North America or another place of origin, must meet the requirements established in the corresponding jurisdiction.

Minor

Students interested in completing a Minor in Education must have a minimum grade point index of 2.50 at the time they declare a minor and begin to take the required courses.

Preschool Level Education

The Aguadilla, Arecibo, Fajardo, Guayama, Metropolitan, Metropolitan Campus' University Center in Caguas, and San German campuses are authorized to offer this Program. The Arecibo Campus and the Metropolitan Campus' University Center in Caguas are authorized to offer the Program online.

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	<u>3 credits</u>
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 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 Aesthetic 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, Metropolitan, and San Germán campuses are authorized to offer this Program. The Arecibo Campus is also authorized to offer this Program through online 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	<u>3 credits</u>
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 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 Aesthetic 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, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Arecibo Campus is also authorized to offer this Program through online 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	<u>3 credits</u>
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 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 Aesthetic 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

Interdisciplinary Special Education (PK-12)

The Bachelor of Arts Degree in Education in Special Education aims to develop a professional in special education properly prepared with the necessary knowledge, skills and attitudes so that he may provide interdisciplinary and transdisciplinary services to the student population with and without disabilities from childhood to the high school level (PK-12).

The Program is directed to prepare a professional who can effectively intervene with the families of the student population with disabilities, as well as with the other related professionals involved with this population. The educational professional will have a base to offer educational services in inclusive classrooms, in other natural environments, and in special classrooms from pre-school to the high school level.

The Guayama Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EDUCATION IN INTERDISCIPLINARY SPECIAL EDUCATION (PK-12)

General Education Requirements	54 credits
Core Course Requirements	37 credits
Major Requirements	36 credits
Elective Courses	<u>3 credits</u>
Total	130

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 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 Aesthetic 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 - 36 credits

EDUC	2053	Nature and Needs of Students with Autismo	3
EDUC	2875	Language Stimulation	3
EDUC	2905	Nature and Needs of Students with Intellectual Disability and and Mental Disorders	3

EDUC	2906	Nature and Needs of the Students with Specific Learning Problems, ADD, and ADHD	3
EDUC	3003	Nature and Needs of Infants and Children of Pre-school Age Children with Developmental Deficiencies	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 Correction of Reading and Writing Problems	3
EDUC	3460	Design and Development of Curriculum and Materials for Students with Disabilities	3
EDUC	3465	Seminar: Students with Disabilities and their Families	3
EDUC	3467	Techniques and Assessment Instruments for Students with Disabilities	3
EDUC	3470	Technological Assistance, Curriculum and Materials for Teaching Students with Disabilities	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	<u>3 credits</u>
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 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 Aesthetic 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 Intellectual Disability and and Mental Disorders	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 Aguadilla, Arecibo, Barranquitas, Fajardo, and San Germán campuses 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	<u>3 credits</u>
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 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 Aesthetic Thought category. They will take the course GEST 2030 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 - 48 credits

BIOL	1101, 1102	General Biology I, II	6
BIOL	1103, 1104	Biology 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	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	<u>3 credits</u>
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 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 Aesthetic Thought category. They will take the course GEST 2030 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	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	1104	Biology 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	<u>6 credits</u>
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 or 3050 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 Asthetic Thought category. They are exempt from taking the course GEHS 2010. Courses GEST 2020 and 2030 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	<u>6 credits</u>
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 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 Aesthetic 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

EDUC	3869	Theories of Instruction, Technological Methodology and Resources for the Teaching of Mathematics at the Secondary Level	3
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
PHYS	3001	General Physics I	4

Secondary Education in Social Studies

The San Germán Campus is 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	<u>3 credits</u>
Total	128

General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. Students will take GEHS 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 Aesthetic Thought category. They are exempt from taking the course GEHS 2010. Courses GEST 2020 and 2030 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, and San Germán campuses are authorized to offer this Program. The Arecibo Campus is also authorized to offer this Program through online learning.

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	<u>3 credits</u>
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 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 Aesthetic 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, Metropolitan Campus' University Center in Caguas, and San Germán campuses are authorized to offer this program. In addition, the Arecibo Campus and the Metropolitan Campus' University Center in Caguas are also authorized to offer this Program through online 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	<u>3 credits</u>
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 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 Aesthetic 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 Intellectual Disability and and Mental Disorders	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	21 credits
Major Requirements	18 credits
Elective Courses	<u>3 credits</u>
Total	133

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 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 Aesthetic 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 - 21 credits

EDUC	2905	Nature and Needs of Students with Intellectual Disability and and Mental Disorders	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	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	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	4000	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	<u>3 credits</u>
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 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 Aesthetic 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 Students with Intellectual Disability and and Mental Disorders	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 Preparation 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, 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	<u>3 credits</u>
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 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 Aesthetic 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 Writing	3
ENGL	3073	Introduction to Linguistics	3
ENGL	3310	Public Speaking	3
ENGL	3320	Fundamental Structures of Grammar	3
ENGL	3325	Fundamentals of Phonetics	3
ENGL	3330	Comparative Analysis of English and Spanish	3
ENGL	3440	Children's Literature	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, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Arecibo Campus is also authorized to offer this Program through online 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	<u>3 credits</u>
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 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 Asthetic 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 Writing	3
ENGL	3073	Introduction to Linguistics	3
ENGL	3310	Public Speaking	3
ENGL	3320	Fundamental Structures of Grammar	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	Literature for Young Adults	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.

Minors

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	Compared Religions	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

Minor in School Social Work

Only students majoring in the Bachelor of Arts degree in Social Work may take this minor.

The Aguadilla, Arecibo, Fajardo and Metropolitan campuses are authorized to offer this minor.

Requirements for the Minor for School Social Work - 18 credits

EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2870	The Exceptional Student Population	4
EDUC	2060	Use of Technology in Education	2
HIST	3010	History of the United States	3

Electronic Engineering Technology (AS and BS)

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 successfully 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 ELECTRONIC ENGINEERING TECHNOLOGY

General Education Requirements		24 credits
Major Requirements		35 credits
Prescribed Distributive Requirements		<u>8 credits</u>
	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 Computing Technologies	3
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Contemporary Puerto Rico	3
		or	
GEEC	2000	Entrepreneurial Culture	3

Major Requirements - 35 credits

ELEC	1120	Industrial Safety	3
ELEC	2121	Logic Circuits Laboratory I	1
ELEC	2131	Logic Circuits I	3
ELEC	2170	Electronic Drawing	3
ELEC	2331	Electrical Circuits Laboratory I	1
ELEC	2332	Electrical Circuits Laboratory II	1
ELEC	2341	Electric Circuits I	3
ELEC	2342	Electric Circuits II	3
ELEC	3171	Electronic Circuits Laboratory I	1
ELEC	3172	Electronic Circuits Laboratory II	1
ELEC	3181	Electronic Circuits I	3
ELEC	3182	Electronic Circuits II	3
ELEC	3470	Industrial Electronics Laboratory	1
ELEC	3480	Industrial Electronics	3
MATH	1500	Precalculus	5

Prescribed Distributive Requirements - 8 credits

Eight credits from the following courses

ELEC	2910	Practice in Industry	4
ELEC	3131	Logic Circuits Laboratory II	1
ELEC	3132	Logic Circuits II	3
ELEC	3660	Solar Energy Laboratory	1
ELEC	3670	Solar Energy	3

Bachelor's Program

The Bachelor of Science Degree in Electronic Engineering 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 ELECTRONIC ENGINEERING TECHNOLOGY

General Education Requirements	48 credits
Major Requirements	60 credits
Prescribed Distributive Requirements	12 credits
Elective Courses	<u>3 credits</u>
Total	123

General Education Requirements - 48 credits

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

Major Requirements - 60 credits

ELEC	1120	Industrial Safety	3
ELEC	2121	Logic Circuits Laboratory I	1
ELEC	2131	Logic Circuits I	3
ELEC	2170	Electronic Drawing	3
ELEC	2331	Electrical Circuits Laboratory I	1
ELEC	2332	Electrical Circuits Laboratory II	1
ELEC	2341	Electrical Circuits I	3
ELEC	2342	Electrical Circuits II	3
ELEC	3171	Electronic Circuits Laboratory I	1
ELEC	3172	Electronic Circuits Laboratory II	1
ELEC	3181	Electronic Circuits I	3

ELEC	3182	Electronic Circuits II	3
ELEC	3470	Industrial Electronics Laboratory	1
ELEC	3480	Industrial Electronics	3
ELEC	4210	Communications Laboratory	1
ELEC	4220	Communications	3
ELEC	4370	Instrumentation Laboratory and Control Technology	1
ELEC	4380	Instrumentation and Control Technology	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	3131	Logic Circuits Laboratory II	1
ELEC	3132	Logic Circuits II	3
ELEC	3421	Electrical Systems Laboratory	1
ELEC	3431	Electrical Systems	3
ELEC	3660	Solar Energy Laboratory	1
ELEC	3670	Solar Energy	3
ELEC	4420	PLC Laboratory	1
ELEC	4430	Programmable Logic Controllers	3
ELEC	4460	Robotics and Automation Laboratory	1
ELEC	4470	Robotics and Automation	3
ELEC	4910	Professional Practice	4

Minor in Electronic Engineering Technology

The Minor in Electronic Engineering Technology is designed to provide the student of any discipline a general base on electrical and logical circuits.

The Aguadilla and San Germán Campuses are authorized to offer this minor.

Requirements for the Minor in Electronic Engineering Technology - 21 credits

MATH	1500	Precalculus	5
ELEC	2121	Logic Circuits Laboratory I	1
ELEC	2131	Logic Circuits I	3
ELEC	2331	Electrical Circuits Laboratory I	1
ELEC	2341	Electric Circuits I	3
ELEC	2332	Electrical Circuits Laboratory II	1
ELEC	2342	Electric Circuits II	3
ELEC	3171	Electronic Circuits Laboratory I	1
ELEC	3181	Electronic Circuits I	3

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 550 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.

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 equivalent with 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		18 credits
Engineering and Related Course Requirements		<u>17 credits</u>
	Total	35 credits

General Education Requirements - 18 credits

Six credits in Spanish and six in English are required.

GESP 1101	Literature and Communication: Narrative and Poetry	3
GESP 1102	Literature and Communication: Essay and Theater	3
GECF 1010	Introduction to the Christian Faith	3
GEEN 1201	Communication in English I	3
GEEN 1202	Communication in English II	3
	or	
GEEN 2311	Reading and Writing	3
GEEN 2312	Literature and Writing	3

One course from the following are required:

GEHS 2010	Historical Process of Puerto Rico	3
GEHS 3020	Global Society	3
GEHS 3050	Human Formation, Society and Culture	3
GEHS 4030	Modern and Contemporary Western Civilization	3

Engineering and Related Course Requirements - 17 credits

CHEM 2115	General Chemistry for Engineers	4
ENGR 1100	Introduction to Engineering	3
MATH 1500	Pre-calculus	5
MATH 2251	Calculus I	5

Computer Engineering (BS)

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. This Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)” (www.abet.org).

Profile of Competencies of Graduates

This Program is designed to develop the following student outcomes:

Knowledge

1. An ability to apply knowledge of mathematics, science and engineering.
2. A knowledge of contemporary issues.
3. An understanding of professional ethical responsibility.
4. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.

Skills

1. An ability to identify, formulate and solve engineering problems.
2. An ability to design and conduct experiments as well as analyze and interpret data.
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
4. An ability to communicate effectively, both orally and in writing.
5. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Attitudes

1. An ability to function on disciplinary teams.
2. A recognition of the need for, and an ability to engage in life-long learning.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN COMPUTER ENGINEERING

General Education Requirements	27 credits
Core Course Requirements	38 credits
Major Requirements	55 credits
Related Requirements	9 credits
Prescribed Distributive Requirements	9-15 credits
Elective Courses	<u>3 credits</u>
Total	141 to 147

General Education Requirements - 27 credits

Twenty-seven (27) credits are required as explained below. Students of this Program are exempt from taking the GEMA 1200 course in the category of Basic Skills in Mathematics and GEIC 1010 Information and Computing. They will only take the GEPE 4040 course in the Philosophical and Aesthetic Thought Category. In the Historical and Social Context Category, one of the following courses will be taken: GEHS

2010, 3020, 3050, or 4030. No courses will be taken in the Scientific and Technological Context Category or in the Category of Health and Quality of Life.

Core Requirements - 38 credits

ENGR	1100	Introduction to Engineering	3
ENGR	2220	Computerized Engineering Graphics	3
ENGR	3300	Engineering Economics	3
CHEM	2115	General Chemistry for Engineers	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3350	Linear Algebra	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

Major Requirements - 55 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	3430	Signals and Systems	3
ELEN	4020	Microcontrollers	3
ELEN	4410	Digital Systems Design	4
ELEN	4610	Analog Communication	4
ELEN	4810	Project Design in Electrical or Computer Engineering	3

Related Requirements - 9 credits

ENGR	3200	Probability and Statistics	3
MATH	3250	Calculus III	3
MATH	3400	Differential Equations	3

Prescribed Distributive Requirements- 9-15 credits

A minimum of 9 credits are required from the following courses:

COEN	4420	Computerized Information Systems Design	4
COEN	4422	User Interface Design and Prototypes	3
COEN	4423	Design of Expert Systems	3
COEN	4535	Integrated Computer System	4
COEN	4550	Parallel Computation Design	3
COEN	4560	Design and Construction of Compilers	3
ELEN	3312	Electronics II	4
ELEN	4627	Communication Data Networks	3

Experience outside the classroom

The student interested in expanding their knowledge or obtaining experiences of practice and research, may take up to a maximum of six additional credits (6) from the previous group of courses or the following courses:

COEN 4915	Computer Engineering Practice	3
COEN 4921	Undergraduate Research Experience in Computer Engineering I	3
COEN 4922	Undergraduate Research Experience in Computer Engineering II	3

Minor Concentration in Hardware Systems and Integrated Systems

Requirement of the minor concentration- 26 credits

For students of Engineering Programs. Interested students will select 26 credits from the following courses:

ELEN 3301	Electric Circuits I	4
ELEN 3311	Electronics I	4
ELEN 3312	Electronics II	4
ELEN 3320	Logic Circuit	4
ELEN 4020	Microcontrollers	3
ELEN 4410	Digital Systems Design	4
ELEN 4627	Communication Data Networks	3
COEN 4510	Computer Architecture	4
COEN 4535	Integrated Computer System	4
*ENGR 3365	Fundamentals of Electrical Engineering	3
*MATH 3400	Differential Equations	3

* Interested Industrial Engineering students should take the courses ENGR 3365 and MATH 3400. The course ENGR 3365 does not apply to students of: Electrical Engineering, Mechanical Engineering or Computer Engineering. This course replaces the ELEN 3301 requirement of the ELEN 3302.

Minor Concentration in Software Systems

Requirement of the minor concentration- 21 credits

For students of Engineering Programs. Interested students will select 21 credits from the following courses:

COEN 2220	Advanced Programming	4
COEN 3410	Software Design and Construction	3
COEN 3510	Operating Systems	4
COEN 4420	Computerized Information Systems Design	4
COEN 4422	User Interface Design and Prototypes	3
COEN 4423	Design of Expert Systems	3
COEN 4510	Computer Architecture	4
COEN 4550	Parallel Computation Design	3

Electrical Engineering (BS)

The Bachelor of Science Degree Program in Electrical Engineering (BSEE) includes the study and design of production systems and the transmission and measurement of electrical signals. It emphasizes the analysis, design, implementation and testing of these systems. In the curriculum, there are four sub-majors: Communication Systems; Control Systems; Electronic Systems; and Power and Energy Systems. The Electrical Engineering Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)" (www.abet.org).

Through this program of studies, we aspire to train the student to practice electrical engineering at the professional level.

Profile of Competencies of Graduates

This Program is designed to develop the following student outcomes:

Knowledge

1. An ability to apply knowledge of mathematics, science and engineering.
2. A knowledge of contemporary issues.
3. An understanding of professional ethical responsibility.
4. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.

Skills

1. An ability to identify, formulate and solve engineering problems.
2. An ability to design and conduct experiments as well as analyze and interpret data.
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
4. An ability to communicate effectively, both orally and in writing.
5. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Attitudes

1. An ability to function on disciplinary teams.
2. A recognition of the need for, and an ability to engage in life-long learning.

Retention Requirements of the Electrical Engineering Program

1. Comply with all Satisfactory Academic Progress norms established in the General Catalog.
2. Approve all concentration and prescribed distributives courses with a minimum grade of C.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN ELECTRICAL ENGINEERING

General Education Requirements	27 credits
Core Course Requirements	41 credits
Major Requirements	49 credits
Related Requirements	9 credits
Prescribed Distributive Requirements	12-18 credits
Elective Courses	<u>3 credits</u>
Total	141 to 147

General Education Requirements - 27 credits

Twenty-seven (27) credits are required as explained below. Students of this Program are exempt from taking the GEMA 1200 course in the category of Basic Skills in Mathematics and GEIC 1010 Information and Computing. They will only take the GEPE 4040 course in the Philosophical and Aesthetic Thought Category. In the Historical and Social Context Category, one of the following courses will be taken: GEHS 2010, 3020, 3050, or 4030. No courses will be taken in the Scientific and Technological Context Category or in the Category of Health and Quality of Life.

Core Requirements - 41 credits

ENGR	1100	Introduction to Engineering	3
ENGR	1200	Introduction to Sustainable Engineering	3
ENGR	2130	Introduction to Engineering Computing	3
ENGR	3300	Engineering Economics	3
CHEM	2115	General Chemistry for Engineers	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3350	Linear Algebra	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

Major Requirements - 49 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	3360	Applied Electromagnetics	4
ELEN	3430	Signals and Systems	3
ELEN	4020	Microcontrollers	3
ELEN	4327	Measurements and Instrumentation	4
ELEN	4351	Power Systems Analysis I	4
ELEN	4509	Control Systems	4
ELEN	4610	Analog Communication	4
ELEN	4810	Project Design in Electrical or Computer Engineering	3

Related Requirements - 9 credits

ENGR	3200	Probability and Statistics	3
MATH	3250	Calculus III	3
MATH	3400	Differential Equations	3

Prescribed Distributive Requirements - 12-18 credits

A minimum of 12 credits are required from the following courses:

Courses related to Electronic Systems

ELEN	4410	Digital Systems Design	4
ELEN	4413	Analog Filter Design	4
ELEN	4414	Electronic Design	4
ELEN	4415	Power Electronics	4

COEN 4510	Computer Architecture	4
COEN 4535	Integrated Computer Systems	4

Courses related to Communication Systems- 12-18 credits

ELEN 4611	Microwave and Radio Frequency Engineering I	4
ELEN 4612	Microwave and Radio Frequency Engineering II	4
ELEN 4623	Optical Communications	3
ELEN 4614	Advanced Digital Communication	4
ELEN 4625	Digital Signal Processing	3
ELEN 4626	Design of Antennas	3
ELEN 4627	Data Communication Networks	3
ELEN 4618	Wireless and Cellular Communication	4

Courses related to Control Systems- 12-18 credits

ELEN 4513	Digital Control Systems	4
ELEN 4514	Robotics	4
ELEN 4535	Process Control	3
ELEN 4516	Computer Aided Control System Design	4
ELEN 4537	Neural Networks Applied to Control Systems	3
ELEN 4538	Automation	3

Courses related to Power Systems- 12-18 credits

ELEN 4352	Power Systems Analysis II	4
ELEN 4353	Electric Machines and Drives	4
ELEN 4375	Electrical Systems Design for Buildings	3
ELEN 4376	Industrial Power Systems Design	3
ELEN 4378	Distributed Generation	3
ELEN 4415	Power Electronics	4

Note

The student interested in expanding their knowledge or obtaining experiences of practice and research, may take up to a maximum of six additional credits (6) from the previous group of courses or the following courses:

ELEN 4915	Electrical Engineering Practice	3
ELEN 4921	Undergraduate Research Experience in Electrical Engineering I	3
ELEN 4922	Undergraduate Research Experience in Electrical Engineering II	3

Minor in Power and Energy Systems Engineering

Requirements of the Minor Concentration in Power and Energy Systems Engineering - 24 credits

Only for students enrolled in Engineering Programs. Industrial Engineering students interested in this Minor Concentration must approve the ENGR 3365 course.

ELEN	3302	Electrical Circuits II	4
ELEN	3311	Electronics I	4
ELEN	4351	Power Systems Analysis I	4
ELEN	4352	Power Systems Analysis II	4
ELEN	4353	Electric Machine and Drives	4
ELEN	4375	Electrical Systems Design for Buildings	3
ELEN	4376	Industrial Power System Design	3
ELEN	4378	Distributed Generation	3
ELEN	4415	Power Electronics	4
MECN	4240	Applied Solar Energy	3

Minor in Systems Engineering Control, Robotics and Automation

Requirements of the Minor Concentration- 24-27 credits

Only for students enrolled in Engineering Programs. Interested students will select 24 credits from the following courses:

ELEN	3302	Electrical Circuits II	4
ELEN	3311	Electronics I	4
ELEN	3312	Electronics II	4
ELEN	3430	Signals and Systems	3
ELEN	4509	Control Systems	4
ELEN	4513	Digital Control Systems	4
ELEN	4514	Robotics	4
ELEN	4535	Process Control	3
ELEN	4516	Computer Aided Control Systems Design	4
ELEN	4537	Neural Networks Applied to Control Systems	3
ELEN	4538	Automation	3
*ENGR	3365	Fundamentals of Electrical Engineering	3
*MATH	3400	Differential Equations	3

* Interested Industrial Engineering students should take the courses ENGR 3365 and MATH 3400. The course ENGR 3365 does not apply to students of: Electrical Engineering, Mechanical Engineering or Computer Engineering. This course replaces the ELEN 3301 requirement of the ELEN 3302.

Minor in Communication Systems

Requirement of the minor concentration- 24-27

Only for students enrolled in Engineering Programs. Interested students will select 24 credits from the following courses:

ELEN 3302	Electrical Circuits II	4
ELEN 3360	Applied Electromagnetics	4
ELEN 3430	Signals and Systems	3
ELEN 4610	Analog and Digital Communications	4
ELEN 4611	Radio Frequency and Microwave Engineering I	4
ELEN 4612	Radio Frequency and Microwave Engineering II	4
ELEN 4623	Optical Communications	3
ELEN 4614	Advance Digital Communications	4
ELEN 4625	Digital Signal Processing	3
ELEN 4627	Data Communication Networks	3
ELEN 4618	Wireless and Cellular Communications	4
*ENGR 3365	Fundamentals of Electrical Engineering	3
MATH 3250	Calculus III	3
*MATH 3400	Differential Equations	3

* Interested Industrial Engineering students should take the courses ENGR 3365 and MATH 3400. The course ENGR 3365 does not apply to students of: Electrical Engineering, Mechanical Engineering or Computer Engineering. This course replaces the ELEN 3301 requirement of the ELEN 3302.

Minor in Electric Systems

Requirement of the minor concentration- 24-27

Only for students enrolled in Engineering Programs. Interested students will select 24 credits from the following courses:

ELEN 3302	Electrical Circuits II	4
ELEN 3311	Electronics I	4
ELEN 3312	Electronics II	4
ELEN 3320	Logic Circuits	4
ELEN 4020	Microcontrollers	3
ELEN 4410	Digital System Design	4
ELEN 4413	Analog Filter Design	4
ELEN 4414	Electronic Design	4
ELEN 4415	Power Electronics	4
COEN 4510	Computer Architecture	4
COEN 4535	Integrated Computer Systems	4
*ENGR 3365	Fundamentals of Electrical Engineering	3
*MATH 3400	Differential Equations	3

* Interested Industrial Engineering students should take the courses ENGR 3365 and MATH 3400. The course ENGR 3365 does not apply to students of: Electrical Engineering, Mechanical Engineering or Computer Engineering. This course replaces the ELEN 3301 requirement of the ELEN 3302.

Industrial Engineering (BS)

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).

Profile of Competencies of Graduates

This Program is designed to develop the following student outcomes:

Knowledge

1. An ability to apply knowledge of mathematics, science and engineering.
2. A knowledge of contemporary issues.
3. An understanding of professional ethical responsibility.
4. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.

Skills

1. An ability to identify, formulate and solve engineering problems.
2. An ability to design and conduct experiments as well as analyze and interpret data.
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
4. An ability to communicate effectively, both orally and in writing.
5. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Attitudes

1. An ability to function on disciplinary teams.
2. A recognition of the need for, and an ability to engage in life-long learning.

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	27 credits
Core Course Requirements	41 credits
Related Requirements	3 credits
Major Requirements	51 credits
Prescribed Distributive Requirements	12 credits
Electives Courses	<u>3 credits</u>
Total	131 to 137

General Education Requirements - 27 credits

Twenty-seven (27) credits are required as explained below. Students of this Program are exempt from taking the GEMA 1200 course in the category of Basic Skills in Mathematics and GEIC 1010 Information and Computing. They will only take the GEPE 4040 course in the Philosophical and Aesthetic Thought

Category. In the Historical and Social Context Category, one of the following courses will be taken: GEHS 2010, 3020, 3050, or 4030. No courses will be taken in the Scientific and Technological Context Category or in the Category of Health and Quality of Life.

Core Requirements - 41 credits

ENGR	1100	Introduction to Engineering	3
ENGR	1200	Introduction to Sustainable Engineering	3
ENGR	2130	Introduction to Engineering Computing	3
ENGR	3300	Engineering Economics	3
CHEM	2115	General Chemistry for Engineers	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3350	Linear Algebra	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

Related Requirements- 3 credits

ENGR	3200	Probability and Statistics	3
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Major Requirements - 51 credits

INEN	3411	Optimization I	3
INEN	3430	Advanced Statistics	3
INEN	3550	Cost Analysis and Control	3
INEN	3710	Work Measurement	4
INEN	4300	Quality Measurement and Analysis	4
INEN	4400	Ergonomics and Design of Workstations	4
INEN	4420	System Simulation	4
INEN	4490	Operations Planning and Control	3
INEN	4511	Lean Six Sigma	4
INEN	4550	Facility Layout and Design	3
INEN	4560	Industrial Safety	3
INEN	4595	Project Management and System Engineering	4
INEN	4610	Services Optimization	3
INEN	4700	Design of Experiments	3
INEN	4810	Comprehensive Design Experience	3

Prescribed Distributive Requirements – 6-12 credits

A minimum of 6 credits are required from the following courses:

INEN	3412	Operation Research II	3
INEN	3600	Sustainable Engineering and Industrial Ecology	3
INEN	4510	Decision-Making under Uncertainty	3
INEN	4512	Advanced Lean Six Sigma	3
INEN	4520	System 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	4600	Automated Manufacturing	3

The student interested in expanding their knowledge or obtaining experiences of practice and research, may take up to a maximum of six additional credits (6) from the previous group of courses or the following courses:

INEN 4915	Industrial Engineering Practice	3	
INEN 4921	Undergraduate Research Experience in Industrial Engineering I	3	
INEN 4922	Undergraduate Research Experience in Industrial Engineering II		3

Minor in Logistics and Operations Research

Intended for students of the Engineering Programs.

The Bayamón Campus is authorized to offer this Minor.

Requirements of the Minor in Logistics and Research of Operations - 24 credits

INEN	3411	Optimization I	3
INEN	3412	Optimization II	3
INEN	3430	Advanced Statistics	3
INEN	3650	Systems Simulation	3
INEN	4490	Operations Planning and Control	3
INEN	4510	Decision-Making under Uncertainty	3
INEN	4545	Supply Chain Management	3
INEN	4570	Stochastic Processes	3

Minor in Quality Systems

Intended for students of the Engineering Programs.

The Bayamón Campus is authorized to offer this Minor.

Requirements of the Minor in Quality Systems - 25 credits

INEN	3430	Advanced Statistics	3
INEN	3720	Work Measurement	3
INEN	4300	Quality Measurement and Analysis	4
INEN	4520	Systems Reliability	3
INEN	4530	Validation of Pharmaceutical Processes	3
INEN	4611	Lean Six Sigma	3
INEN	4612	Advanced Lean Six Sigma	3
INEN	4700	Design of Experiments	3

Mechanical Engineering (BS)

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).

Profile of Competencies of Graduates

This Program is designed to develop the following student outcomes:

Knowledge

1. An ability to apply knowledge of mathematics, science and engineering.
2. A knowledge of contemporary issues.
3. An understanding of professional ethical responsibility.
4. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.

Skills

1. An ability to identify, formulate and solve engineering problems.
2. An ability to design and conduct experiments as well as analyze and interpret data.
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
4. An ability to communicate effectively, both orally and in writing.
5. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Attitudes

1. An ability to function on disciplinary teams.
2. A recognition of the need for, and an ability to engage in life-long learning.

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.

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	27 credits
Core Course Requirements	41 credits
Related Requirements	15 credits
Major Requirements	49 credits
Prescribed Distributive Requirements	6-12 credits
Elective Courses	<u>3 credits</u>
Total	141-147

General Education Requirements - 27 credits

Twenty-seven (27) credits are required as explained below. Students of this Program are exempt from taking the GEMA 1200 course in the category of Basic Skills in Mathematics and GEIC 1010 Information and Computing. They will only take the GEPE 4040 course in the Philosophical and Aesthetic Thought Category. In the Historical and Social Context Category, one of the following courses will be taken: GEHS 2010, 3020, 3050, or 4030. No courses will be taken in the Scientific and Technological Context Category or in the Category of Health and Quality of Life.

Core Requirements - 41 credits

ENGR	1100	Introduction to Engineering	3
ENGR	1200	Introduction to Sustainable Engineering	3
ENGR	2130	Introduction to Engineering Computing	3
ENGR	3300	Engineering Economics	3
CHEM	2115	General Chemistry for Engineers	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3350	Linear Algebra	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

Related Requirements- 3 credits

ENGR	2220	Computerized Engineering Graphics	3
ENGR	3365	Fundamentals of Electric Engineering	3
MATH	3250	Calculus III	3
MATH	3400	Differential Equations	3
MECN	3500	Numerical Methods for Engineering	3

Major Requirements - 49 credits

MECN	3005	Vectorial Mechanics for Engineers: Statics	3
MECN	3010	Vectorial Mechanics for Engineers: Dynamics	3
MECN	3115	Fluid Mechanics and Applications	3
MECN	3165	Solid Mechanics	3
MECN	3250	Laboratory of Manufacturing Process	1
MECN	4105	Mechanical Vibrations	3
MECN	4110	Mechanisms Design	3
MECN	4121	Design of Machine Elements I	3
MECN	4122	Design of Machine Elements II	3
MECN	4201	Thermodynamics I	3
MECN	4202	Thermodynamics II	3
MECN	4210	Heat Transfer	3
MECN	4305	Engineering Materials	3

MECN	4405	Engineering Analysis Assisted by Computer	3
MECN	4610	Automatic Control Systems	3
MECN	4710	Mechanical Engineering Laboratory: Fluid Mechanics and Thermal Science	1
MECN	4720	Mechanical Engineering Laboratory: Material and Solid Mechanics	1
MECN	4730	Mechanical Engineering Laboratory: Instrumentation, Control and Vibrations	1
MECN	4815	Design Project in Mechanical Engineering	3

Prescribed Distributive Requirements – 6-12 credits

A minimum of 6 credits are required from the following courses:

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	4220	Design of Thermal Systems	3
MECN	4230	Air Conditioning and Refrigeration	3
MECN	4235	Heating, Ventilation and Air Conditioning Systems Design	3
MECN	4240	Solar Energy Applications	3
MECN	4350	Aerospace Structures and Materials	3
MECN	4620	Dynamics and Control of Aerospace Vehicles	3
MECN	4820	Aerospace Experience	3

The student interested in expanding their knowledge or obtaining experiences of practice and research, may take up to a maximum of six additional credits (6) from the previous group of courses or the following courses:

MECN	4910	Practice in Mechanical Engineering	3
MECN	4921	Undergraduate Research Experience in Mechanical Engineering I	3
MECN	4922	Undergraduate Research Experience in Mechanical Engineering II	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 (BA)

The Bachelor of Arts Program in English aims to develop competent professionals in the liberal arts, by offering them a solid base in the mastery of English in oral expression and writing as well as in the development of the skills of critical thinking. This bachelor's degree offers the opportunity for graduates to enter the work world in sectors such as: business, government, tourism, law, communications, research, literature and translation, among others, including the possibility of continuing graduate studies.

This humanistic program aims to enable students to participate and contribute as responsible persons in our changing, global, heterogeneous and technologically challenging society.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Write, read, and analyze literary and not-literary texts critically.
2. Know the different methods used in academic research to be able to inform the results of the research with validity and credibility.
3. Acquire advanced technological knowhow and apply it in their professional area.
4. Acquire knowledge of an integral education, with capacity for critical thinking, environmental awareness, social responsibility and knowledge of the field of English.
5. Know the contemporary syntactic and morphologic patterns of English and the acquisition process of the linguistic systems of English.
6. Be knowledgeable about a diversity of cultures and traditions and show mastery of the concepts of genre and literary periods.

Skills

1. Apply the concepts of literature to daily life.
2. Develop their creative and imaginative capacity for problem solving and the capacity to be a critical and independent thinker.
3. Strengthen and practice advanced writing and composition skills to write English correctly and reason clearly and logically.
4. Strengthen and practice advanced oral communication skills in English in order to reason verbally in a clear and logical manner.
5. Analyze quantitative and qualitative problems and conduct research in their professional area.
6. Work effectively in a team.

Attitudes

1. Recognize the importance of a world vision through a holistic, multicultural and global lens.
2. Value the importance of acquiring mastery of English as a tool in the work world and as a global mass media.
3. Show respect and acceptance towards cultural and linguistic differences.
4. Handle conflicts effectively.
5. Recognize the importance of an ethical professional conduct.

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	57 credits
Prescribed Distributive Requirements	9 credits
Elective Courses	<u>6 credits</u>
Total	120

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.

Note: GEEN 2311, 2312 and 2313 are required for admission to this Program.

Core Course Requirements - 57 credits

ENGL	3007	Advanced Writing	3
ENGL	3073	Introduction to Linguistics	3
ENGL	3310	Public Speaking	3
ENGL	3320	Fundamental Structures of Grammar	3
ENGL	3325	Fundamentals of Phonetics	3
ENGL	3330	Comparative Analysis of English and Spanish	3
ENGL	3350	Analysis of Literary Genres	3
ENGL	3410	North American Voices	3
ENGL	3435	Puerto Rican Voices	3
ENGL	3510	Popular Culture	3
ENGL	3520	Cross Cultural Studies	3
ENGL	3850	The Short Story	3
ENGL	3863	Poetry	3
ENGL	4014	Modern Drama	3
ENGL	4030	Creative Writing	3
ENGL	4400	The Novel	3
ENGL	4500	Language and Power	3
ENGL	4083	Introduction to Sociolinguistics	3
ENGL	4800	Research in English	3

Prescribed Distributive Requirements - 9 credits

Nine (9) additional credits in English selected from the following courses:

ENGL	2076	Reading and Writing of Technical Texts	3
ENGL	3025	Writing of Professional Documents	3
ENGL	3400	Literature for Young Adults	3
ENGL	3420	Analysis of Selected Works of British Authors	3
ENGL	3440	Children’s Literature	3
ENGL	3450	Analysis of the Graphical Novel	3
ENGL	4000	Shakespeare	3
ENGL	4015	Translation Workshop	3
ENGL	4073	Acquisition of English as a Second Language	3
ENGL	4440	Caribbean Voices	3
ENGL	4700	Literature since 1945	3
ENGL	4950	Integrative Seminar	3

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		<u>3 credits</u>
	Total	21

Core Courses - 18 credits

ENGL	3007	Advanced Writing	3
ENGL	3025	Writing of Professional Documents	3
ENGL	3310	Public Speaking	3
SPAN	3015	Oral Communication	3
SPAN	3020	Writing Workshop	3
SPAN	3025	Writing of Professional Documents	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		<u>3 credits</u>
	Total	18

Core Courses - 15 credits

ENGL	2060	Conversation and Grammar Review	3
ENGL	2075	Technical Literature	3
ENGL	3007	Advanced Writing	3
ENGL	3025	Writing of Professional Documents	3
ENGL	3310	Public Speaking	3

Prescribed Distributive Requirements - 3 credits

An elective course in English at the 3000 or 4000 level.

Entrepreneurial and Managerial Development (BBA)

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 satisfactorily 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.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know the theoretical principles on administration, design and organizational behavior.
2. Know the scientific and mathematical concepts and their applicability in the operation of an organization.
3. Know the basic principles the financial information and their effect in decision-making.
4. Know the nature and function of organizations and their effects in society.
5. Know the concepts of social and ethical responsibility and their contribution to society.
6. Know the fundamental principles and concepts of entrepreneurship and their application in the organization.
7. Know the diverse business and managerial strategies.
8. Know the administrative concepts, theories and principles of the operation of an organization.

Skills

1. Analyze the legal frame that the company is responsible for.
2. Administer the resources, policies and procedures of the company in harmony with the internal challenges and of the organizational environment.
3. Examine critically and creatively the changes of the environment that affect the organization and propose strategies to face them.

4. Apply the basic functions of administration in the organization.
5. Apply the quantitative and qualitative analysis through the use of contemporary technology in the solution of organizational problem.
6. Design strategic plans for the achievement of organizational goals and objectives.
7. Exert leadership to develop and administer a company.
8. Integrate managerial theory to the different work scenarios.
9. Prepare a Business Plan.
10. Execute a Business Plan.

Attitudes

1. Appreciate the ethical values that predominate in the creation, development and administration of a company.
2. Recognize the importance of entrepreneurship in the company and in the economy of a country.
3. Express the importance of the development of critical and creative thought.
4. Foster collaborative work.
5. Recognize the importance of family businesses in the economic and social development of a country.
6. Show interest in establishing their own company.

All campuses are authorized to offer this Program. The Metropolitan Campus is also authorized to offer the associate degree at its University Center in Caguas. In addition, the Bayamón Campus is authorized to offer this Program by means of online learning.

This Program, in the San Germán Campus, is accredited by the *International Assembly for Collegiate Business Education (IACBE)*, located on 11374 Strang Line Road, Lenexa, Kansas, USA.

This Program, in the Bayamón Campus, is accredited by the *Accreditation Council for Business Schools and Programs (ACBSP)* (<https://www.acbsp.org/>).

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	30 credits
Elective Courses	<u>3 credits</u>
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	2101	Corporate Finance I	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	Business Communication in Spanish or	
OMSY	3040	Business Communication in English	3

Major Requirements - 30 credits

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
ENTR	2200	Fundamentals of Entrepreneurship	3
ENTR	3900	Entrepreneurial and Managerial Strategies	3
ENTR	3910	Family Businesses	3
ENTR	4400	Design and Development of a Business Plan	3
ENTR	4910	Entrepreneurial and Managerial Practicum or	
ENTR	4930	Entrepreneurial or Managerial Project	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
ITEC	1200	Programming Algorithms	3

ITEC	2450	Development of Web Page	3
MKTG	1210	Introduction to Marketing	3
MKTG	2220	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	Fundamentals of Management	3
ENTR	2200	Fundamentals of Entrepreneurship	3
ENTR	2212	Social Entrepreneurism	3
MKTG	1210	Introduction to Marketing	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	Fundamentals 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 online learning.

REQUIREMENTS FOR THE POST ASSOCIATE DEGREE PROFESSIONAL CERTIFICATE IN ENTREPRENEURIAL DEVELOPMENT

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 Management (BS)

The Bachelor of Science Degree in Environmental Management presents a curriculum of an interdisciplinary nature applying the natural sciences and mathematics to the design and implementation of management plans for the conservation of natural resources. The Program aspires to make graduates proficient in the legal aspect, in the pertinent methodologies and techniques for a particular environmental situation.

Profile of Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know the principles and concepts of the natural sciences (physics, mathematics and chemistry) related to the environmental area.
2. Know the legal aspects related to the development of a plan of environmental administration.
3. Know the methodologies used to design a plan of environmental administration.

Skills

1. Apply the principles and concepts of the natural sciences to the design of a plan of environmental administration.
2. Apply pertinent current legislation in the implementation of a plan of environmental administration.

Attitudes

1. Show high norms of ethical behavior in the performance of their functions.
2. Promote, through their performance, actions directed to improve society's quality of life

The Bayamón Campus is authorized to offer this program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN ENVIRONMENTAL MANAGEMENT

General Education Requirements	45 credits
Major Requirements	15 credits
Related Requirements	61 credits
Elective Courses	<u>3 credits</u>
Total	124

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 Mathematics Skills category. Students are exempt from the of Scientific and Technological Context category.

Major Requirements - 15 credits

EVMA	1110	Introduction to Environmental Management	3
EVMA	3501	Environmental Impact: Technology and Assessment	3
EVMA	4211	Environmental Pollution I	3
EVMA	4212	Environmental Pollution II	3
EVMA	4505	Environmental Management Strategies	3

Related Requirements - 61 credits

EVSC	2210	Environmental Policies, Laws and Regulations	3
BIOL	1101	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	1104	Biology Skills Laboratory II	1
BIOL	2010	Fundamentals of Plant and Animal Biology	4
BIOL	2153	Biostatistics	3
BIOL	3105	General Microbiology	4
BIOL	3503	Ecology	3
BIOL	4105	Fundamentals of Geographic Information Systems (GIS)	3
BIOL	4503	Conservation and Management of Natural Resources	3
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	3015	Environmental Analytical Chemistry	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

Environmental Sciences (BS)

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 Aguadilla, Barranquitas, and Ponce campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN ENVIRONMENTAL SCIENCES

General Education Requirements	45 credits
Major Requirements	79 credits
Elective Courses	<u>3 credits</u>
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 of this program are exempt from taking courses in the Scientific and Technological Context category.

Major Requirements - 79 credits

EVSC	1110	Introduction to Environmental Sciences	3
EVSC	2500	Quality of Air	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	Geographic Information Systems in Environmental Sciences	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	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	2103	Zoology	3
BIOL	2104	Botany	3
BIOL	2153	Biostatistics	3
BIOL	3105	General Microbiology	4
BIOL	3503	Ecology	3
BIOL	3504	Environmental Health	3
BIOL	3505	Environmental Laws, Policies and Regulations	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

Minor in Environmental Science

Requirements for the Minor in Environmental Science - 18 credits

Students majoring in Biology, Microbiology, Biotechnology and Biomedical Sciences may opt for the Minor in Environmental Science upon approving the following courses:

EVSC	1110	Introduction to Environmental Sciences	3
EVSC	2500	Quality of Air	2
EVSC	3001	Management and Conservation of Natural Resources	4
EVSC	3600	Waste Management	3
BIOL	3504	Environmental Health	3
BIOL	3505	Environmental Laws, Policies and Regulations	3

Environmental Technology (BS)

The Bachelor of Science in Environmental Technology program is interdisciplinary. It 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.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge:

1. Define chemical concepts related to Environmental Chemistry, sources of contamination and the effects in the air, soil and water, as well as in human health.
2. Identify chemical characteristics of bodies of water, the atmosphere and the lithosphere.
3. Enumerate the principles for the management of dangerous substances.
4. Name laws related to environmental rights.
5. Describe characteristics of environmental dangers.
6. Name polluting agents commonly found in human surroundings and natural ecosystems.
7. Describe the impact of environmental contamination in human health and the ecosystems.
8. Enumerate classes of natural disasters.
9. Describe planning and environmental protection strategies.
10. Identify sources of scientific information.

Skills:

1. Analyze the fundamental principles that describe an environment that is healthy and in balance.
2. Identify contamination sources, their reactions, transportation and effect in the air, soil and water, as well as in human health.
3. Illustrate the value of chemistry in industry, laboratory and in research, and its possible environmental impact.
4. Interpret laws related to the environment.
5. Evaluate the existing legal alternatives for the control and solution of controversies that interfere or are related to the Public Environmental Policy of Puerto Rico.
6. Relate ethics to matters of environmental nature.
7. Make effective use of databases and literature related to the search for scientific information.
8. Summarize and present a selected topic in the environmental area.

Attitudes:

1. Stimulate critical, analytical and scientific reasoning as a tool for the control of environmental deterioration and planned development.
2. Promote appreciation for the importance of the environment in our lives.
3. Collaborate in the strengthening of regulations and laws that guarantee the protection of the environment and human health.
4. Promote the combination of ethical-moral values and scientific principles to collaborate in the development of society and the preservation of the environment.
5. Recognize the benefit of the scientific information available on environmental studies.
6. Recognize the importance of scientific research in evaluation and environmental preservation.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN ENVIRONMENTAL TECHNOLOGY

General Education Requirements	45 credits
Major Requirements	72 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>6 credits</u>
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 will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students of this Program are exempt from taking courses GEST 2020 or 2030 from the Scientific and Technological Context category.

Major Requirements – 72 credits

EVTH	3010	Environmental Public Policy	3
EVTH	4020	Environmental Evaluation	3
EVTH	4910	Internship	3
EVTH	4960	Integration Seminar	1
BIOL	1101	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	2103	Zoology	3
BIOL	2104	Botany	3
BIOL	1104	Biology Skills Laboratory II	1
BIOL	2153	Biostatistics	3
BIOL	3105	General Microbiology	4
BIOL	3503	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	3360	Food Chemistry	3
CHEM	3370	Green Chemistry	3
CHEM	4003	Industrial Chemistry	3
CHEM	4220	Biochemistry	4

Finance (BBA)

The Bachelor of Business Administration (BBA) in Finance aims to prepare students to understand, analyze and apply the principles that govern financial activities in the local, national and global context.

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.

Proficiency Profile of the Graduates

The Program is designed to develop the competences that allow the student to:

Knowledge

Demonstrate knowledge and understanding:

1. of the decisions of the financial regulators and the government fiscal policies to stabilize the economy and how these affect the company or business where they work.
2. of the processes related to the stock markets and the possible causes of volatility.
3. trends in financial markets and regulations and decisions of the government sector.

Skills

1. Apply knowledge of finance regarding the best use of financial resources and assets of the company to achieve the highest profitability of the business.
2. Apply mathematical formulas that facilitate decision-making about the best use of money and investment projects.
3. Use electronic means to calculate and evaluate financial indicators.
4. Develop financial strategies to maximize returns on investments.
5. Analyze financial data of the company and compare them with those of the sector or industry to which they belong while evaluating its competitive position and its possibilities of growth.

Attitudes

1. Recognize the importance of the interrelation that exists between their functions and those of their colleagues within the company.
2. Demonstrate an attitude of trustworthiness, honesty, responsibility, and discretion in the handling of financial matters assigned to them.
3. Maintain cordial relations with their co-workers, superiors, suppliers, and clients.

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

This Program, in the San Germán Campus, is accredited by the *International Assembly for Collegiate Business Education (IACBE)*, located on 11374 Strang Line Road, Lenexa, Kansas, USA.

This Program, in the Bayamón Campus, is accredited by the *Accreditation Council for Business Schools and Programs (ACBSP)* (<https://www.acbsp.org/>).

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN FINANCE

General Education Requirements	48 credits
Core Course Requirements	41 credits
Major Requirements	27 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>3 credits</u>
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 - 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	2101	Corporate Finance I	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	Business Communication in Spanish or	
OMSY	3040	Business Communication in English	3

Major Requirements - 27 credits

FINA	1000	Ethics in Finance	3
FINA	2102	Corporate Finance II	3
FINA	3130	Credit Risk Management	3
FINA	3150	Personal Finance	3
FINA	3235	Money and Banking	3
FINA	3300	Financial Markets	3
FINA	3700	Fundamentals of Investments	3
FINA	4100	International Finance	3
FINA	4970	Seminar in Finance	3

Prescribed Distributive Requirements - 6 credits

Select two of the following courses:

FINA	2150	Electronic Calculation Sheet in Finance	3
FINA	3400	Introduction to Risk and Insurance	3
FINA	3500	Introduction to Real Estate	3
FINA	4910	Practicum in Finance	3
BADM	3313	Mercantile Law	3

MAEC	3236	Public Finance and Fiscal Policy	3
MAEC	3240	Mathematics for Decision-Making	3
MAEC	3243	International Economics	3
POLS	3150	Introduction to International Relations	3
REAL	2500	Real Estate Economics	3
REAL	2600	Legal Principles of Real Estate	3

Minor in Finance

The Bayamón Campus is authorized to offer this minor.

(Intended for students of Business Administration programs)

Requirements for the Minor in Finance - 21 credits

FINA	2101	Corporate Finance I	3
FINA	2101	Corporate Finance I	3
FINA	3150	Personal Finance	3
FINA	3235	Money and Banking	3
FINA	3300	Financial Markets	3
FINA	3700	Fundamentals of Investments	3
FINA	4100	International Finance	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

Fine Arts (BA)

Well thought study of the development of the arts, its conception and creation to be appreciated as a vehicle for the expression of the human being, allowing society to examine, express, and evaluate itself. The arts, as the mirror of society, is the expression of its culture and identity and links it with its ethical and historical roots.

The Bachelor of Arts (BA) in Fine Arts aspires to create a professional within the disciplines of the plastic arts that contributes to the development of the arts and the quality of life in general. The degree of Bachelor of Arts in Fine Arts offers specializations in Ceramics, Drawing, Sculpture, Photography, Printmaking, Painting, and the Teaching of Art.

The courses of the program are aimed at the development of the student's artistic abilities so that they reach their technical and conceptual potential in their execution of plastic artworks. Accordingly, the courses offer the technical knowledge of each discipline as well as a historical and conceptual basis for the professional and personal development of the student / artist.

Graduation Requirements

In addition to complying with the general graduation requirements established in this Catalog, students must:

1. Participate in four (4) collective or individual exhibitions in art galleries or museums in or outside the country, in the two years prior to graduation and provide the Art Program catalogs of the sample as evidence.
2. Participate in the Collective Graduate Students' Exhibition organized by the Campus' Art Program in their last year of study.

Profile of the Competencies of the Graduate of the Bachelor of Fine Arts

The Program is designed to develop the professional and technical competencies that will permit the student to:

Knowledge

1. Know the theories of art, elements, and principles that structure the work of art.
2. Identify the techniques relevant to the particular study medium and its plastic qualities for artistic expression.

Skills

1. Handle the plastic media, tools, materials and equipment for the creation of plastic work.
2. Decide the applicable theories in the analysis of the artistic work.
3. Evaluate the work of art in its formal and conceptual aspects.
4. Analyze decisions about the appropriate technique for artistic creation.
5. Apply the latest technology, particularly the computer, in the production of the artistic work.

Attitudes

1. Critically appreciate the conceptual components of works of art.
2. Value an artistic work in the context of the place, time, and space in which it is made.

Profile of the Competencies of the Graduate of the Bachelor of Arts in Fine Arts Specialty in Ceramics

Knowledge:

Know the techniques to create artistic work in ceramics.

Skills:

Develop works of art using the techniques in ceramics.

Attitudes:

Respect the canons of the discipline of ceramics.

Profile of the Competencies of the Graduate of the Bachelor of Arts in Fine Arts Specialty in Drawing

Knowledge:

Know the techniques to create artistic work in drawing.

Skills:

Develop works of art using drawing techniques.

Attitudes:

Respect the canons of the discipline of drawing.

Profile of the Competencies of the Graduate of the Bachelor of Arts in Fine Arts Specialty in Sculpture

Knowledge:

Know the techniques to create artistic work in sculpture.

Skills:

Develop works of art using sculpture techniques.

Attitudes:

Respect the canons of the discipline of sculpture.

Profile of the Competencies of the Graduate of the Bachelor of Arts in Fine Arts Specialty in Photography

Knowledge:

Know the techniques to create artistic work in photography.

Skills:

Develop works of art using the techniques of photography.

Attitudes:

Respect the canons of the discipline of photography.

Profile of the Competencies of the Graduate of the Bachelor of Arts in Fine Arts Specialty in Printmaking

Knowledge:

Know the engraving techniques to create artistic work.

Skills:

Develop works of art using engraving techniques.

Attitudes:

Respect the canons of the discipline of printmaking.

Profile of the Competencies of the Graduate of the Bachelor of Arts in Fine Arts Specialty in Painting

Knowledge:

Know the techniques to create artistic work in painting.

Skills:

Develop works of art using the techniques of painting.

Attitudes:

Respect the canons of the discipline of painting.

Profile of the Competencies of the Graduate of the Bachelor of Arts in Fine Arts in Art Teaching

Knowledge:

1. Know the methodology in teaching art.
2. Know the techniques and fundamental concepts that make up the plastic arts and the historical and philosophical framework of art education.

Skills:

1. Handle plastic media, tools, materials, and equipment necessary for the execution of plastic works.
2. Apply technology in the field of education and the plastic arts.
3. Use the appropriate evaluation and assessment processes for works of art.

Attitudes:

1. Value the work of art in its formal and conceptual aspects in the teaching of art.
2. Promote respect and appreciation for the plastic arts.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS IN FINE ARTS

For the majors in Ceramics, Drawing, Sculpture, Photography, Printmaking, and Painting

General Education Requirements	48 credits
Core Course Requirements	42 credits
Major Requirements	15 credits
Prescribed Distributed Requirements	9 credits
Elective Courses	<u>6 credits</u>
Total	120

For the major in Art Education

General Education Requirements	51 credits
Core Course Requirements	42 credits
Major Requirements	48 credits
Elective Courses	<u>3 credits</u>
Total	144

General Education Requirements – 42 o 51 credits

For the majors in Ceramics, Drawing, Sculpture, Photography, Printmaking, and Painting:

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 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 Asthetic Thought category.

Core Course Requirements - 42 credits

ARTS	1102	Technical Foundations and Practice in Drawing	4
ARTS	1104	Design	3
ARTS	1106	Thre Dimension Design	3
ARTS	1300	Introduction to Pottery	4
ARTS	1540	Digital Photography	3
ARTS	2040	Drawing	3
ARTS	2154	History of Puerto ican Art	3
ARTS	2250	Painting I	4
ARTS	2355	Introduction to ENgraving	3
ARTS	2403	History of Art	3
ARTS	3403	History of Modern and Contemporary Art	3
ARTS	3415	History of Latin American and Caribbean Art	3

Select three (3) credits form the following course:

ARTS	2406	Art Masterpieces	3
ARTS	3360	Art and Technology	3
ARTS	3407	Geder, Representation and the Visual Arts	3

Majors: One of the following is required: Ceramics, Drawing, Sculpture, Photography, Engraving, and Painting

Ceramics

Ceramics - 15 credits

Required courses - 9 credits

ARTS	2260	Relief Sculpture	3
ARTS	2300	Functional Pottery	3
ARTS	3303	Sculptural Ceramics	3
ARTS	3305	Figurative Ceramics	3
ARTS	4303	Clays and Glazes	3

Prescribed Distributed Requirements for the major in Ceramics – 9 credits

Select nine (9) credits form the following courses:

ARTS	1100	Color Theory	3
ARTS	3004	Arts of the Book	3
ARTS	3150	Figure Drawing	3
ARTS	4202	Airbrush	3
ARTS	4251	Assemblage	3
ARTS	4254	Metal Sculpture	3
ARTS	4360	Digital Art	3
ARTS	4365	Computerized Graphic Design	3

Drawing

Drawing – 15 credits

ARTS	2060	Drawing in Fluid Media	3
ARTS	2061	Drawing on Abrasive Media	3
ARTS	2062	Color Drawing	3
ARTS	3150	Figure Drawing	3
ARTS	4150	Advanced Drawing	3

Prescribed Distributed Requirements for the major in Drawing - 9 credits

Select nine (9) credits form the following courses:

ARTS	1100	Color Theory	3
ARTS	3004	Arts of the Book	3
ARTS	4202	Airbrush	3
ARTS	4353	Lithography	3
ARTS	4360	Digital Art	3
ARTS	4365	Computerized Graphic Design	3

Sculpture

Sculpture - 15 credits

ARTS	2260	Relief Sculpture	3
ARTS	3250	Wood Carving Sculpture	3
ARTS	4251	Assemblage	3
ARTS	4254	Metal Sculpture	3
ARTS	4256	Human Sculpture	3

Prescribed Distributed Requirements for the major in Sculpture - 9 credits

Select nine (9) credits form the following courses:

ARTS	1100	Color Theory	3
ARTS	2300	Functional Pottery	3
ARTS	3004	Arts of the Book	3
ARTS	3150	Figure Drawing	3
ARTS	3303	Sculptural Ceramics	3
ARTS	3305	Figurative Ceramics	3
ARTS	4202	Airbrush	3
ARTS	4303	Clays and Glazes	3
ARTS	4360	Digital Art	3
ARTS	4365	Computerized Graphic Design	3

Photography

Photography - 15 credits

ARTS	2306	History of Photography	3
ARTS	2600	Black and White Photography	3
ARTS	3410	Lighting	3
ARTS	3450	Color Photography	3
ARTS	3660	Documentary and Social Photography	3

Prescribed Distributed Requirements for the major in Photography - 9 credits

Select nine (9) credits form the following courses:

ARTS	1100	Color Theory	3
ARTS	3004	Arts of the Book	3
ARTS	3662	Figure Photography	3
ARTS	4202	Airbrush	3
ARTS	4355	Photolithography	3
ARTS	4360	Digital Art	3

Painting

Painting - 15 credits

ARTS	2252	Painting: Color Investigations	3
ARTS	3150	Figure Drawing	3
ARTS	4100	Watercolor	3
ARTS	4252	Experimental Painting	3
ARTS	4260	Advanced Painting	3

Prescribed Distributed Requirements for the major in Painting - 9 credits

Select nine (9) credits form the following courses:

ARTS	1100	Color Theory	3
ARTS	3004	Arts of the Book	3
ARTS	3212	Figure Painting	3
ARTS	3351	Serigraphy I	3
ARTS	4150	Advanced Drawing	3

ARTS	4202	Airbrush	3
ARTS	4210	Mural Painting	3
ARTS	4360	Digital Art	3
ARTS	4365	Computerized Graphic Design	3

Printmaking

Printmaking - 15 credits

ARTS	3351	Serigraphy I	3
ARTS	4010	Engraving and the Image	3
ARTS	4350	Intaglio Techniques	3
ARTS	4353	Lithography	3
ARTS	4355	Photolithography	3

Prescribed Distributed Requirements for the major in Engraving - 9 credits

Select nine (9) credits form the following courses:

ARTS	1100	Color Theory	3
ARTS	3004	Arts of the Book	3
ARTS	3150	Figure Drawing	3
ARTS	3352	Serigraphy II	3
ARTS	3355	Linoleum and Wood Engraving Techniques	3
ARTS	4150	Advanced Drawing	3
ARTS	4202	Airbrush	3
ARTS	4360	Digital Art	3
ARTS	4365	Computerized Graphic Design	3

Art Education

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	3
EDUC	2870	The Exceptional Student Population	4
EDUC	3013	Learning Strategies	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4050	Curriculum Design	2
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	3850	Methods in Art Education in the Elementary School	2
ARED	3851	Methods in Art Education in the Secondary School	2
EDUC	2060	Integration of Technology in Education	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.

Forensic Biology (BS)

The Bachelor of Science degree in Forensic Biology presents a curriculum of an interdisciplinary nature by applying natural and mathematical sciences to the comparative analysis of bacteriological material to contribute to clarify the causes, method and circumstances of death and other crimes. The Program aspires to make the graduates one proficient in the collection and preservation of biological material and in the use of techniques of hematological, serologic and DNA analyses.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Demonstrate general knowledge in forensic Biology.
2. Demonstrate general knowledge on analysis and identification of samples of biological origin.

Skills

1. Use the suitable modern technologies to carry out hematological, serologic and DNA analyses.
2. Apply general knowledge of Biology to specific analyses of DNA, blood and other corporal fluids.

Attitudes

1. Work in teams to carry out a criminal research within the legal, ethical and moral frame.

The Bayamón Campus is authorized to offer this Program.

ACADEMIC REQUIREMENTS FOR THE BACHELOR OF SCIENCE DERREE IN FORENSIC BIOLOGY

General Education Requirements	45 credits
Major Requirements	19 credits
Related Requirements	60 credits
Elective Courses	<u>3 credits</u>
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 are exempt from taking courses in the Scientific and Technological Context category.

Major Requirements - 19 credits

FORS	2000	Introduction to Forensic Science	3
FORS	3970	Special Topics	3
FORS	4421	Forensic Investigation I	3
FORS	4511	Forensic Biological Analysis I	3
FORS	4512	Forensic Biological Analysis II	3
FORS	4910	Forensic Practice	3
FORS	4960	Integration Seminar	1

Related Requirements - 60 credits

BIIN	3220	Biochemistry	3
BIOL	1101	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1

BIOL	1116	Fundamentals of Human Anatomy and Physiology	5
BIOL	1104	Biology Skills Laboratory II	1
BIOL	2153	Biostatistics	3
BIOL	3010	Genetics	3
BIOL	4604	Cellular and Molecular Biology	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
CJUS	1000	Introduction to Criminology	3
CJUS	3025	Criminal Law	3
MATH	1500	Precalculus	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

Forensic Informatics (BS)

The Bachelor of Science in Forensic Informatics presents an interdisciplinary curriculum that aims to develop in students the basic skills and the knowledge necessary to collect, handle and preserve digital evidence appropriately. The Program seeks to develop students' skills in computational security so that they are able to analyze, implement and evaluate an information system that fulfills the legal and ethical aspects of the discipline.

Profile of the Competencies of Graduates

The Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know the general principles of mathematics, physics and forensic sciences as they apply to the investigation of cybernetic crimes.
2. Recognize patterns of human behavior.
3. Understand the impact of technology when designing investigative processes and in the analysis of an information system and of the evidence contained therein.

Skills

1. Use the tools and skills of computational security to analyze, implement and evaluate an information system that is in compliance with the law.
2. Apply computer sciences to an investigation of cybernetic crimes.
3. Apply forensic techniques and procedures according to standard protocol and by using appropriate tools in the analysis of digital evidence.
4. Manage complex infrastructures of information network systems.
5. Analyze the complex infrastructures of network systems, including hardware and software architecture.

Attitudes

1. Respect the ethical, moral and legal aspects of the discipline.
2. Appreciate teamwork.

The Bayamón Campus is authorized to offer this program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN SCIENCES IN FORENSIC INFORMATICS

General Education Requirements	45 credits
Major Requirements	27 credits
Related Requirements	44 credits
Elective Courses	<u>6 credits</u>
Total	122

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 category of Basic Skills in Mathematics. Students of this Program are exempt from taking courses in the Scientific and Technological Context category.

Major Requirements - 27 credits

FORS	2000	Introduction to Forensic Sciences	3
FORS	3300	Security in Informatics Networks	3
FORS	3350	Computational Security	3
FORS	3450	Digital Evidence	3
FORS	397_	Special Topics	3
FORS	4100	Multimedia Analysis	4
FORS	4421	Forensic Investigation I	4
FORS	4910	Forensic Practice	3
FORS	4960	Integration Seminar	1

Related Requirements – 44 credits

BIOL	1101	General Biology I	3
BIOL	1103	Biology Skills Laboratory I	1
COMP	2110	Introduction to Computer Science	3
COMP	2120	Programming Logic	3
COMP	2315	Structured Programming	3
CSIR	1220	Data Communication	2
CSIR	2121	Network Administration I	3
CSIR	2122	Network Administration II	3
CHEM	1111	General Chemistry I	4
CJUS	1000	Introduction to Criminology	3
CJUS	3025	Criminal Law	3
MATH	1500	Precalculus	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

Forensic Science (BS)

The Forensic Science Program presents an interdisciplinary program of studies that aims to to develop in students the knowledge and fundamental skills necessary for the application of scientific methods used to contribute to the discovery of 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 the natural sciences, forensic sciences and in criminology.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Demonstrate knowledge in natural sciences, forensic sciences and criminology.
2. Demonstrate scientific knowledge in the administration of the crime scene and in its procedures.

Skills

1. Use techniques for the scientific analysis of evidence in the laboratory.
2. Apply investigation skills for the scientific-forensic analysis in the crime scene.
3. Operate equipment and scientific instrumentation for the collection of data and its interpretation in the scientific-forensic analysis.

Attitudes

1. Demonstrate an ethical and professional attitude in the scientific analysis of the evidence and in their role as investigator.
2. Recognize the importance of the legal frame of the criminal justice system.

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

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN FORENSIC SCIENCE

General Education Requirements	45 credits
Major Requirements	27 credits
Required Related Courses	46 credits
Elective Courses	<u>3 credits</u>
Total	121

General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students are exempt from taking courses in the Scientific and Technological Context category. 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 - 27 credits

CJUS	1000	Introduction to Criminology	3
CJUS	3025	Criminal Law	3
FORS	2000	Introduction to Forensic Science	3
FORS	3970	Special Topics	3
FORS	4400	Forensic Toxicology	4
FORS	4421	Forensic Investigation I	3
FORS	4422	Forensic Investigation I, II	4

FORS	4910	Forensic Practice	3
FORS	4960	Integrating Seminar	1

Required Related Courses – 46 credits

BIOL	1101	General Biology I	3
BIOL	1103	Biology Skills Laboratory I	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
MATH	1500	Precalculus	5
PHYS	3001, 3002	General Physics I, II	8

Minor in Forensic Science

The Bayamón and Ponce campuses are authorized to offer this Minor.

Requirements of the Minor in Forensic Science - 18 credits

CJUS	1000	Introduction to Criminology	3
CJUS	3025	Criminal Law	3
FORS	2000	Introduction to Forensic Science	3
FORS	3970(A-C)	Special Topics	3
FORS	3970(A-C)	Special Topics	3
FORS	4421	Forensic Investigation I	3

General Business Administration (BBA)

The Bachelor of Business Administration degree in General Business Administration aims to prepare professionals in Economic and Administrative Sciences with a multidisciplinary approach. The program focuses on the study of the foundations of business administration and is supplemented with the study of courses of specific areas to be determined by the student in agreement with his academic adviser and the approval of the department director. It provides a flexible and innovative programmatic vision, which promotes the integral development of students to expand their cognitive and creative capacities, as well as the critical judgment necessary to perform in the contemporary world.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know a variety of academic disciplines within business administration.
2. Show knowledge in the liberal arts and sciences applied to business administration.
3. Acquire knowledge of innovations and changes in the areas that make up business administration.

Skills

1. Communicate effectively in the oral as well in the written form.
2. Develop critical thinking from a multidisciplinary conceptual framework.
3. Use information technology for the analysis and solution of problem of business administration.
4. Develop the basic skills related to business administration.

Attitudes

1. Value the fundamental concepts of the different disciplines of economic and administrative sciences.
2. Show an ethical, legal and socially responsible attitude in the process of decision-making in business administration.
3. Foment a harmonious organizational climate.

Admission Requirements

In addition to the admission requirements established in this Catalog, students of this Program must be interviewed when this is necessary. If an interview is necessary for online learning students who will attend courses outside Puerto Rico, this may be conducted through the means available to students. The interview will be supervised by a proctor in the place where the student is located as determined by the University.

The Aguadilla, Bayamón and the Metropolitan campuses are authorized to offer this Program.

This Program, in the Bayamón Campus, is accredited by the *Accreditation Council for Business Schools and Programs (ACBSP)* (<https://www.acbsp.org/>).

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN GENERAL BUSINESS ADMINISTRATION

General Education Requirements	48 credits
Core Course Requirements	22 credits
Major Requirements	38 credits
Elective Courses	<u>12 credits</u>
Total	120

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 - 22 créditos

ACCT	1161	Introduction to the Financial Accounting	4
BADM	1900	Fundamentals of Management	3
MAEC	2140	Foundations of Quantitative Methods	3
MAEC	2211	Principles of Economics (Micro)	3
MAEC	2221	Basic Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Business Communication in Spanish or	
OMSY	3040	Business Communication in English	3

Major Requirements - 38 credits

Students will take 38 major credits selected from the following disciplines: Marketing, Human Resources Management, Entrepreneurial and Managerial Development, Industrial Management, Office Systems Administration, Accounting, Finance, Computerized Information Systems, Managerial Economics or any area related to Business Administration. The major requirements will be established in agreement between the student and the academic adviser, with the approval of the department director.

Graphic Design (AVA)

The Program of the Associate of Visual 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.

Profile of the Competencies of Graduates

The Program is designed to develop the professional and technical competencies that will permit students to:

Knowledge:

1. Know the theory the design of the different conceptual expositions in graphic communication.
2. Know the tools used in graphic works in different media related to the printing and publishing industry.
3. Know the graphical techniques to create, prepare and present graphic works in printed or electronic media.

Skills:

1. Apply the new technology in doing work in graphic design.
2. Carry out works of graphic design with conceptual maturity.
3. Make decisions on the appropriate techniques in graphic creation.
4. Analyze problems of graphic design in relation to effective communication in different projects.
5. Handle the proper tools of their profession, in the areas of electronic work as well as in printed form.

Attitudes:

1. Design works with awareness of the place, time and space where the work is performed.
2. Appreciate the commitment with their professional role to create and to perform the graphical work in an ethical manner.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF VISUAL ARTS DEGREE IN GRAPHIC DESIGN

General Education Requirements	24 credits
Specialization Requirements	31 credits
Prescribed Distributive Requirements	6 credits
Total	61

General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computing Technologies	3
GEMA 1000	Quantitative Reasoning	3
GEHS 2010	Historical Process of Contemporary Puerto Rico or	3
GEEC 2000	Entrepreneurial Culture	3

Major Requirements - 31 credits

ARTS	1102	Technical Foundations and Drawing Practice	4
ARTS	1200	Introduction to Graphic Design	3
ARTS	1220	Electronic Image	3
ARTS	1420	Typography Design	3
ARTS	1430	Printed Publication Design	3
ARTS	1541	Digital Photography	3
ARTS	1600	Evolution of Graphic Design	3
ARTS	2111	Graphic Design Applied to Internet	3
ARTS	2200	Digital Graphic Design	3
ARTS	2401	Reproduction and Printing	3

Prescribed Distributive Requirements- 6 credits

Students will select six credits from the following courses:

ARTS	2321	Animation for Internet	3
ARTS	2331	Design of Interactive Projects and Multimedia	3
ARTS	2521	Three-dimensional Design	3
ARTS	2530	Video and Digital Sound	2
ARTS	2531	Special Effects for Digital Video	2
ARTS	2911	Supervised Experience in Graphic Arts	3

Graphic Design (BA)

Bachelor of Arts in Visual Arts in Graphic Design

The Visual Arts Program in Graphic Design offers the degrees of Associate of Arts and Bachelor of Arts.

The degrees in Visual Arts in Graphic Design 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 student of the Associate Degree in Visual Arts in Graphic Design will have the option of continuing studies to complete their baccalaureate.

Profile of the Competencies of Graduates

The Program is designed to develop the professional and technical competencies that will allow students to:

Knowledge

1. Know the theory of design of different conceptual approaches in graphic communication.
2. Know the tools of graphic works in different media relevant to the printing and publishing industry.
3. Know the graphic techniques to create, prepare and present graphic works in print or electronic media.

Abilities

1. Apply the new technology in the realization of works in graphic design.
2. Perform graphic design work with conceptual maturity.
4. Evaluate appropriate techniques in graphic creation.
5. Analyze graphic design problems in relation to the effective communication of the different projects.
6. Handle the profession's tools both in the areas of electronic and printed work.
7. Relate the graphic tools in the realization of well articulated graphic designs.
8. Select the techniques and images that best solve graphic and conceptual problems.

Attitudes

1. Value works with awareness of the place, time and space where they are made.
2. Appreciate the commitment to their role as professionals to create and execute graphic work ethically.
3. Recognize the importance of developing graphic works with a high degree of intellectual honesty.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS IN VISUAL ARTS IN GRAPHIC DESIGN

General Education Requisites	48 credits
Specialization Requisites	50 credits
Prescribed Distributive Requisites	18 credits
Elective Courses	<u>6 credits</u>
Total	122

General Education Requisites - 48 credits

Forty-eight (48) credits are required as explained in the General Education Requirements for Baccalaureates section.

Specialization Requisites - 50 credits

ARTS 1100	Color Theory	3
ARTS 1102	Technical Foundations and Drawing Practice	4
ARTS 1200	Introduction to Graphic Design	3
ARTS 1220	Electronic Image	3
ARTS 1420	Typography Design	3
ARTS 1430	Printed Publication Design	3
ARTS 1541	Digital Photography	3
ARTS 1600	Evolution of Graphic Design	3
ARTS 2111	Graphic Design Applied to Internet	3
ARTS 2200	Digital Graphic Design	3
ARTS 2331	Design of Interactive Projects and Multimedia	3
ARTS 2401	Reproduction and Printing	3
ARTS 2521	Three-dimensional Design	3
ARTS 2530	Video and Digital Sound	2
ARTS 2531	Special Effects for Digital Video	2
ARTS 3420	Typography Design II	3
ARTS 3600	Poster Design	3

Prescribed Distributive Requisites - 18 credits

Select 9 credits from the following courses:

ARTS 2321	Animation for Internet	3
ARTS 2911	Supervised Experience in Graphic Arts	3
ARTS 4860	Packaging Design	3
ARTS 4920	Graphic Design for exhibitions and environmental works	3

Select 9 credits in Fine Arts:

Take 9 credits in Fine Arts, within the following areas: Ceramics, Drawing, Sculpture, Painting, Photography, and Printmaking.

Health, Physical Education and Recreation (BA)

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 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 the respective levels. 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 Arecibo Campus is authorized to offer this Program through online learning.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EDUCATION WITH MAJORS IN ADAPTED, ELEMENTARY (K-6), AND SECONDARY (7-12) PHYSICAL EDUCATION

General Education Requirements	51 credits
Core Course Requirements in Education	32 credits
Core Course Requirements in the Major	37 credits
Major Requirements	12-15 credits
Elective Courses*	<u>3 credits</u>
Total	135-138

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 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 Aesthetic 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 L (Adapted) X (Physical Education)	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 - 37 credits

HPER	2140	Experiences in Movement I	2
HPER	2210	Fundamentals of Physical Education and Sport Technology	3
HPER	2220	Experiences in Movement II	2
HPER	2330	First Aid and Personal Safety for Children, Youth and Adults	3
HPER	2270	Kinesiology and Functional Anatomy	3
HPER	3310	Experiences in Movement III	3
HPER	3330	Fundamental Skills and Training in Team Sports IV	3
HPER	3350	Motor Learning and Movement Analysis	3
HPER	3360	Fundamental Skills and Training in Team Sports 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	4305	Sports Training Methodology	3
EDUC	3875	Educational Theory, Methodology and Technological Resources in the Teaching of Physical Education at the Secondary Level 7-12	3

*Elective courses – 3 credits

In order for a candidate to aspire to teacher certification in Physical Education K-12 that the Department of Education of Puerto Rico grants in harmony with the Certification Regulation (2012), the candidate must have approved two methodology courses: one K-6 and another 7-12. For this reason:

1. the student of Physical Education at the Elementary Level will select EDUC 3875 as an elective course.
2. the student of Physical Education at the Secondary Level will select EDUC 3878 as an elective course.

However, if the student cannot select EDUC 3875 or EDUC 3878 (according to the major) as an elective course, the student must take the course as an additional degree requirement. In these cases, the student will take a total of 137 credits, instead of 134.

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	30 credits
Elective Courses	<u>3 credits</u>
Total	125

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 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 Asthetic 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 - 30 credits

HPER	1870	Themes in Health, Physical Education and Recreation	2
HPER	2030	Philosophy and Basic Principles of Health	3
HPER	2330	First Aid and Personal Safety for Children, Youth and Adults	3
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)

The Bachelor of Art in Sport Technology will prepare the student in the evaluation of traumas dealing with soft and hard tissue, medical emergencies and accidents, as well as in possible chronic-degenerative diseases. Such protocol takes place in athletic populations and in individuals that practice exercises for the maintenance of health. Also accident prevention and dealing with the rehabilitation of the injured person are studied. The physiological, mental, social and dietetic aspects of the people who participate in competitive or recreational sport activities are described. The Program emphasizes the design and structuring of methods of physical-sport training in a scientific manner for special populations.

Profile of the Competencies of Graduates

The program of the Bachelor of Arts in Sports Technology is designed to develop the professional competencies that will permit students to:

Knowledge

Demonstrate knowledge and understanding of:

1. The biopsychosocial factors that affect the field of sport technology, in sport scenarios of a competitive and recreational nature, methodologies of sport training or in programs of exercises and physical activities.
2. The knowledge, concepts and foundations for the prevention, the evaluation and the managing of injuries that happen in sports, physical-sport training and in recreational programs.
3. The nutritional aspects and their effects in sport performance, individual health and the collective well-being.

Skills

1. Evaluate the injured person, the potential participant of a program of physical exercise-activity and the competitive-recreational sport activities, as well as the assessment and the alignment of the muscular-skeletal kinetic chain.
2. Apply the different types of therapeutic bandages and the protectors.
3. Apply the techniques of therapeutic massage, according to the stage of competition of the athlete.
4. Apply the basic procedures for the acute and chronic biopsychosocial treatment of typical injuries in athletes and medical emergencies for diverse populations.
5. Design programs of physical and psycho-social rehabilitation, systems of physical-sport and recreational training, and of physical activity, based on the specific profile of the athlete, the apparently healthful populations, the individuals with a variety of chronic-degenerative diseases, obesity and in the pediatric, geriatric and feminine population.

Attitudes

1. Foment the modelling of attitudes that promote health, the integral well-being and the quality of life.
2. Model a professional practice with ethics based on principles of respect and esteem for the sport technology discipline.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SPORTS TECHNOLOGY

General Education Requirements	48 credits
Major Requirements	66 credits
Elective Courses	<u>6 credits</u>
Total	120

General Education Requirements - 48 credits

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

Major Requirements - 66 credits

HPER	2210	Fundamentals of Physical Education and Sport Technology	3
HPER	2270	Kinesiology and Functional Anatomy	3
HPER	2330	First Aid and Personal Safety for Children, Youth and Adults	3
HPER	3010	Sports Psychology	3
HPER	3050	Introduction to the Prevention and Management of Injuries	3
HPER	3051	Therapeutic Massages	3
HPER	3330	Fundamental Skills and Training in Team Sports IV	3
HPER	3360	Fundamental Skills and Training in Team Sports V	3
HPER	3380	Evaluation of Injuries and Design of a Program of Physical Rehabilitation in Individual and Team Sports	3
HPER	3430	Personal and Community Health and Safety	3
HPER	3480	Nutrition for Sports, Exercise and Physical Activity	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	4170	Physiology of Human Movement	3
HPER	4180	Measurement, Evaluation and Research of the Development of Physical Fitness and its Components	3
HPER	4200	Techniques and Skills for the Personal Trainer	3
HPER	4305	Sport Training Methodology	3
HPER	4308	Design of Exercise Programs	3
HPER	4310	Functional Training Methodology	3
HPER	4441	Practicum in Athletic Training I	3
HPER	4442	Practicum in Athletic Training II	3

Health Sciences (BS)

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

General and Major Requirements	69 to 82 credits
An Associate Degree in a health related area (Includes 24 credits in the General Education Program for Associate Degrees)	
General Education Requirements at the Bachelor's Level	21 credits
Major Requirements	25 credits
Specialization Requirements	<u>16 to 22</u> credits
Total	131 to 150

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 (BA)

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.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

1. To know the theoretical principles of historical research and their application.

Skills

1. To apply knowledge in the different professional areas, such as education, law, literature, the communications, journalism, art, library science, archiving, museography, religion, private enterprise and public service.
2. To use interdisciplinary knowledge in the construction of a world view of reality.
3. To explain the historical and cultural development of Puerto Rico in the context of universal history.
4. To apply the knowledge of history to the analysis of different kinds of human problems.

Attitudes

1. To appreciate the historical development of human beings and their society through centuries.
2. To value the role of the historian in modern society.

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	21 credits
Required Related Courses	14 credits
Elective Courses	<u>9 credits</u>
Total	122

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 Contemporary 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
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Prescribed Distributive Requirements - 21 credits

Twenty-one (21) credits from the following courses:

HIST	2010	Latin American Indigenous Cultures	3
HIST	2020	Spain and Portugal I	3
HIST	2025	Spain and Portugal II	3
HIST	2035	Latin America since its Independence	3
HIST	2040	The Caribbean since the 17th Century	3
HIST	2060	Introduction to Oral History	3
HIST	2210	Computer Use in Historical Research	3
HIST	2220	Puerto Rico and the Insular Caribbean in the 20 th Century	3
HIST	3010	Historical Process of the United States of America	3
HIST	3020	Europe I	3
HIST	3025	Europe II	3
HIST	3030	The Muslim World	3
HIST	3040	Africa	3
HIST	3060	Asia	3
HIST	3075	Russia during the 19 th and 20 th Centuries	3
HIST	3210	The Second British Empire	3
HIST	3220	Mexico since its Independence	3
HIST	3225	The Viceroyalty of the New Spain	3
HIST	3230	The Era of Revolutions 1774-1824	3
HIST	397_	Special Topics	3
HIST	4110	Historical Problems	3
HIST	4220	Brazil	3
HIST	4230	Spanish American Institutions	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	4300	Study-Travel	3

Required Related Courses - 14 credits

Choose eight (8) credits in language courses from the following:

*It is recommended that students, who wish to continue graduate studies in history, take the credits in the same language.

Italian			
ITAL	1001	Basic Italian I	4
ITAL	1002	Basic Italian II	4
French			
FREN	1001	Basic French I	4
FREN	1002	Basic French II	4
Portuguese			
PORT	1001	Basic Portuguese I	4
PORT	1002	Basic Portuguese II	4

Choose six (6) credits from the following courses:

ANTH	3010	Ethnography and Ethnology	3
ANTH	3500	Archeology	3

ANTH	4700	Cultures of the Caribbean	3
SOCI	3900	History of Social Thought	3
POLS	2040	Government of the United States	3
POLS	2088	Government of the Commonwealth of Puerto Rico	3
POLS	3501	Political Systems of Latin America	3
GEOG	3434	Geography of Middle America and the Caribbean	3
GEOG	4494	Geography of Puerto Rico	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

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.

Minor in History and Puerto Rican Literature

The minor in History and Puerto Rican Literature is a complementary academic offering to the Bachelor of Arts in History. This minor studies history from the point of view of literary activity. It develops research skills and the interpretation of human literary facts from a historical perspective. It applies the knowledge of searching, administration and the basic organization of documents, and historiographic and literary material.

The Metropolitan Campus is authorized to offer this minor.

Requirements for the Minor in History and Puerto Rican Literature - 21 credits

SPAN	3211	Puerto Rican Literature I	3
SPAN	3212	Puerto Rican Literature II	3
SPAN	4196	The Language of Puerto Rico	3
HIST	2050	Puerto Rico I	3
HIST	2055	Puerto Rico II	3
HIST	2220	Puerto Rico and the Insular Caribbean in the 20 th Century	3
HIST	3110	Research in History and Puerto Rican Literature	3

Hotel and Restaurant Management (BBA)

The fundamental purpose of the Bachelor's Degree in Business Administration with a major in Hotel and Restaurant Management is to prepare students in disciplines that will allow them to perform in managerial positions in companies in the hospitality industry.

The Program aspires to develop in students the competencies in the administration of hotel and foodservice organizations that promote an efficient, productive and ethical operation in the following areas: human resource management, service to clients, prices, publicity, foods and drink services, budget management, and maintenance of physical facilities.

Due to the nature of the hotel industry, graduates need to communicate effectively in English as well as in Spanish. In order to develop the 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 professional communication skills in English related to the industry (HRMT 2100). Some of the courses of this major are offered in English, to foment competence in this language.

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

Profile of Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know the characteristic elements and the historical bases of the hospitality and gastronomy industry, framed in the development of tourism.
2. Understand the impact of this industry in the social, cultural, economic and environmental areas of the country, and the processes and procedures to reach organizational efficiency.
3. Identify the organizational tools that will permit the effective administration of the organizational elements in a hotel or gastronomical business.
4. Know the laws that apply to the operations of hotels and restaurants as part of the tourist industry of the country.
5. Know the role that human resources play in the success of a hotel or gastronomical organization.
6. Know the specific language of the industry and use it adequately to have an effective performance of their functions.
7. Know the ethical rules applied to decision making in the business and their benefits related to the social responsibility of the companies in this industry and of identifying the areas that have been identified for behaviors devoid of ethics.

Skills

1. Demonstrate their capacity to make decisions in diverse areas considering the consequences of these in the company for which they work, in their own company or in the hotel and gastronomical industry of the country, in general.
2. Evaluate organizational elements and their effectiveness.
3. Be able to make changes in the structures of hotels and restaurants that will permit greater effectiveness.
4. Be able to create standardized procedures that will allow efficiency in the operation of companies in the hospitality industry.
5. Apply the managerial functions in the search for the appropriate use of resources and their greater productivity.
6. Use computerized programs, information systems and appropriate technology to hotel and gastronomical operations.
7. Make business decisions in controversial situations using the ethical rules as a guide.

Attitudes

1. Demonstrate a positive attitude towards responsible decision making and social commitment.
2. Value the importance that the organizational elements have in the successful performance of Hotels and Restaurants.
3. Value keeping up-to-date with the technologies pertinent to hotel and gastronomical operations.
4. Recognize the ability to communicate in English and Spanish as a crucial and enriching element of their personal experience to achieve professional success.
5. Respect ethics for obtaining business success, showing preference for those behaviors that result in the benefit of others and not exclusively for their own personal benefit.

Retention Requirements

The Bachelor's Program in Business Administration in Hotel and Restaurant 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 2.50 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 and Restaurant Management, the student must:

1. Obtain a minimum grade point average of 2.50 in major courses 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: HRMT 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 AND RESTAURANT MANAGEMENT

General Education Requirements	48 credits
Core Course Requirements	26 credits
Major Requirements	51 credits
Elective Courses	<u>3 credits</u>
Total	128

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 - 26 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	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

Major Requirements - 51 credits

TURI	2000	Tourism Legislation	3
HRMT	1200	Introduction to the Tourism and Hospitality Industry	3
HRMT	1300	Introduction to Food and Beverages Management	3
HRMT	1301	Food Production and Service Lab	2
HRMT	2100	Professional Communication Skills in English for the Hospitality and Tourism Industry	3
HRMT	2200	Introduction to Marketing in the Hospitality Industry	3
HRMT	2302	Advanced Food Production and Service Lab	2
HRMT	2500	Human Resources Management in the Hospitality Industry	3
HRMT	2600	Beverages Management and Service	3
HRMT	2800	Restaurant Development and Management	3
HRMT	3010	Front Office	3
HRMT	3300	Physical Facilities Management	3
HRMT	3330	Financial Management for Hospitality Organizations	3
HRMT	3400	Casino Management	3
HRMT	3500	Technology and Information Systems in the Hospitality Industry	3
HRMT	4400	Meetings and Conventions Management	3
HRMT	4915	Internship in Hotel Management	5

Credit may be granted for the internship (HRMT 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 Department 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 (BBA)

Human Resources Management is a discipline of great importance in the strategic planning of organizations. The fundamental purpose of the Bachelor of Business Administration program in Human Resources Management is to provide students the knowledge, skills and abilities on the principles, practices and the processes of the strategic management of human resources. The Program emphasizes the importance of the integration of the objectives of human resources management with the organization's objectives and foments the attitudes that professionals in this field must possess.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Enumerate the strategies necessary to plan, direct, supervise and coordinate the activities related to the organization's employees.
2. Identify the functions of the Human Resources area related to recruitment, selection, training and development of the human resource; to compensations, labor legislation, syndication and collective bargaining; and to security and hygiene in the organizational work environment.
3. Differentiate the processes in strategic decision-making corresponding to human resources management.
4. Know the characteristics the workforce and how these influence in the practices of the strategic management of human resources.
5. Compare the legal framework applicable to human resources management.
6. Describe ethical behavior in human resources professionals.
7. Recognize the competitive advantage that the organizations must develop through their human resources to obtain a positioning in the globalized markets.

Skills

1. Apply the practices and the policies of the of human resources management that support the strategic administration of organizations.
2. Handle labor diversity for the benefit of the organization.
3. Apply technology and information systems in human resources for their development and performance.
4. Communicate with property and correction, in oral as well as in written form, with the professional language of their field.

Attitudes

1. Promote an ethical conduct in harmony with the standards of the profession.
2. Appreciate the importance of sensitivity considering the needs of the workforce.
3. Promote the desire of development of the employees through continuous learning to respond to the challenges of the human resources profession.
4. Demonstrate the disposition to become a leader and change agent, within as well as outside the organization.
5. Value the importance of continuous learning to keep updated and apply new technologies and practices that affect the profession.

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

All campuses are authorized to offer this Program. The Ponce Campus is also authorized to offer this Program through online learning.

This Program, in the San Germán Campus, is accredited by the *International Assembly for Collegiate Business Education (IACBE)*, located on 11374 Strang Line Road, Lenexa, Kansas, USA.

This Program, in the Bayamón Campus, is accredited by the *Accreditation Council for Business Schools and Programs (ACBSP)* (<https://www.acbsp.org/>).

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN HUMAN RESOURCES MANAGEMENT

General Education Requirements	48 credits
Core Course Requirements	41 credits
Major Requirements	27 credits
Prescribed Distributive Requirements	3 credits
Elective Courses	<u>3 credits</u>
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	Business Information Systems	3
BADM	4300	Managerial Economics	3
FINA	2101	Corporate Finance I	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	Business Communication in Spanish or	
OMSY	3040	Business Communication in English	3

Major Requirements - 27 credits

BADM	2650	Human Behavior in the Organization	3
BADM	3330	Human Resource Management	3
BADM	3490	Supervision	3
BADM	3700	Security and Hygiene in the Work Environment	3
BADM	3950	Human Resources Training and Development	3
BADM	4340	Protective Labor Legislation	3
BADM	4350	Syndication and Collective Bargaining	3
BADM	4430	Wage and Salary Management	3
BADM	4973	Integration Seminar in Human Resource Management	3

Prescribed Distributive Requirements - 3 credits

Students will choose three (3) credits from the following:

BADM	3313	Mercantile Law	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, Barranquitas, 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	3330	Human Resource Management	3
BADM	3490	Supervision	3
BADM	3700	Safety and Hygiene in the Work Environment	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

Humanistic Studies (BA)

The Bachelor of Arts degree in Humanistic Studies aims to prepare professionals in the humanities with a multidisciplinary approach. The program focuses on the study of the foundations of Humanistic Studies and is supplemented with the study of courses of specific areas to be determined by the student in agreement with his academic adviser and the approval of the department director. It provides a flexible and innovative programmatic vision, which promotes the integral development of students to expand their cognitive and creative capacities, as well as the critical judgment necessary to perform in the contemporary world.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Explain the cultural experiences that have contributed to the formation of human beings.
2. Recognize the interdependence of the different countries of the world and the personal responsibility for the advancement of peace and international understanding.
3. Indicate the problems of human beings in their social and historical process of development.
4. Integrate the interdisciplinary knowledge to the formation of a globalizing vision of the world.

Skills

1. Develop a critical, analytical and constructive mentality, capable of reflecting on the vital problems of human beings.
2. Interpret reality through literature.
3. Refine the oral and written communication skills.
4. Apply the knowledge of the human beings' behavior through historical acts throughout time in all their diversity and complexity.

Attitudes

1. Understand and enjoy literature, art, music and other cultural activities and expressions personally and socially and participate in some way in creative activities.
2. Show solidarity with other human beings and recognize, respect and defend the dignity and the right of others to their individuality.
3. Appreciate the Puerto Rican history and culture, and their relation to the cultures of the world.
4. Have esthetic sensitivity for the enjoyment of literature, art and national and international music.

Admission Requirements

In addition to the admission requirements established in this Catalog, students of this Program must be interviewed when this is necessary. If an interview is necessary for online learning students who will attend courses outside Puerto Rico, this may be conducted through the means available to students. The interview will be supervised by a proctor in the place where the student is located as determined by the University.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN HUMANISTIC STUDIES

General Education Requirements	48 credits
Core Course Requirements	21 credits
Major Requirements	39 credits
Elective Courses	<u>12 credits</u>
Total	120

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 - 21 credits

ARTS	2403	History of Art	3
HIST	4110	Historical Problems	3
MUSI	3320	History of Puerto Rican and Latin American Music	3
PHIL	2013	Types and Problems in Philosophy	3
RELI	4353	Philosophy of Religion	3
SPAN	3015	Oral Communication	3
SPAN	3020	Writing Workshop	3

Major Requirements - 39 credits

Students will take 39 major credits selected from among the following areas of the Humanities: Philosophy, Music, Art, Religion, Languages, Literature, Communications, and Design. The major requirements will be established in agreement between the student and the academic adviser, with the approval of the department director.

Industrial Chemistry (BS)

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 3910 and 3920).

Profile of the Competencies of Graduates:

The Program is designed to develop the competencies that will permit students to:

Knowledge

1. Demonstrate general knowledge in the area of chemistry.
2. Demonstrate technical knowledge related to the area of validations.
3. Demonstrate technical knowledge related to the area of the manufacturing of drugs and industrial processes.
4. Know the scientific processes and the tools fundamental to develop or to improve processes and products.

Skills

1. Handle and operate equipment and instruments necessary for chemical analysis of industrial or related types.
2. Use analytical techniques to analyze chemical compound quantitatively.

Attitudes

1. Adapt efficiently to the relevant work team while respecting the highest values of honesty and professional ethics.

The Bayamón Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN INDUSTRIAL CHEMISTRY

General Education Requirements	45 credits
Major Requirements	81 credits
Elective Courses	<u>6 credits</u>
Total	132

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. Students of this program are exempt from taking the course from the Scientific and Technological Context category GEST 2020 or 3030.

Major Requirements - 81 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	3015	Environmental Analytical Chemistry	4
CHEM	3320	Analytical Chemistry	4
CHEM	3350	Pharmaceutical Chemistry	3
CHEM	3390	Biotechnology for Chemists	3
CHEM	4003	Industrial Chemistry	3
CHEM	4160	Industrial Chemical Analysis	5
CHEM	4350	Chemistry of Materials	3
CHEM	4850	Process Validation	3
CHEM	4915	Practice in Industrial Chemistry	3
CHEM	4970	Industrial Chemical Seminar	1
BIOL	1101	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	3105	General Microbiología	4
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

Minor in Chemistry

The Arecibo, Bayamón, Guayama, 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 approved a minimum of twenty-four (24) credits from the chemistry curriculum (courses CHEM) of which, a minimum of nine (9) credits must be from 3000 or 4000 level courses.

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

Minor in Industrial Chemistry

Intended for students of Natural Sciences, except those in Industrial Chemistry.

The Bayamón Campus is authorized to offer this Minor.

Requirements of the Minor in Industrial Chemistry - 20 credits

CHEM	2212	General Chemistry II	4
CHEM	3320	Analytical Chemistry	4
CHEM	3350	Pharmaceutical Chemistry	3
CHEM	4003	Industrial Chemistry	3

Six (6) additional credits in Chemistry at the CHEM 3000 or 4000 level are required.

Information Technology (BBA)

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 development of 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 provides a background for the continuation of graduate studies and professional development in this discipline.

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

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

Demonstrate to knowledge and understanding of:

1. foundations and trends in the field of information technology.
2. aspects of audit and security of the information technology.
3. legal implications for the implementation and use of information technologies.
4. processes to carry out electronic businesses, Enterprise Resource Planning and the management of information system projects.
5. trends in programming languages, data bases and communications networks.

Skills

1. Program applications using computer languages.
2. Analyze the requirements for the implementation of computer networks in harmony with the company's needs.
3. Apply analytical techniques that will allow students to make decisions in a rational and efficient way.
4. Develop projects based on the information system development cycle and on the administration of new technologies.
5. Develop applications using the resources and services of the Internet that will allow the expansion of the company's functions at the global level.
6. Design data bases that will allow the development of enterprise applications.
7. Recommend policies of audit and security in information systems.
8. Communicate recommendations and findings with clarity and precision, both orally and in writing.

Attitudes

Demonstrate:

1. leadership under ethical and legal principles related to the field of information technology.
2. capacity to perform collaborative work.
3. a positive attitude towards professional improvement.

The Aguadilla, Metropolitan, and San Germán campuses are authorized to offer this Program. In addition, the Aguadilla Campus is authorized to offer this Program online.

This Program, in the San Germán Campus, is accredited by the *International Assembly for Collegiate Business Education (IACBE)*, located on 11374 Strang Line Road, Lenexa, Kansas, USA.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN INFORMATION TECHNOLOGY

General Education Requirements	48 credits
Core Course Requirements	35 credits
Major Requirements	36 credits
Elective Courses	<u>3 credits</u>
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 - 35 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
FINA	2101	Corporate Finance I	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	Business Communication in Spanish or	3
OMSY	3040	Business Communication in English	3

Major Requirements - 36 credits

ITEC	1100	Introduction to Information Technology	3
ITEC	1200	Programming Algorithms	3
ITEC	2310	Visual Programming in Information Systems	3
ITEC	2450	Development of Web Page	3
ITEC	3130	Database Design and Management	3
ITEC	3350	Telecommunications and Business Networks	3
ITEC	3400	Electronic Businesses	3
ITEC	3420	Information System Analysis and Design	3
ITEC	3570	Programming in Internet	3
ITEC	4500	Audit and Security of Information Systems	3
ITEC	4915	Practicum or	3
ITEC	4916	Project	3
ITEC	4970	Seminar in Information Systems	3

Credit may be granted for the practicum (ITEC 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.

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.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

To demonstrate knowledge and understanding of:

1. the implications of the problem of uncertainty and risk in society and the techniques for their management.
2. the basic concepts on planning for the employee benefits.

Skills

1. To perform functions related to life insurance and the handicapped.
2. To carry out technical tasks related to the administration of insurances.

Attitudes

1. To value the administrative or technical functions related to the administration of risk or fringe benefits in a commercial or industrial company or in health service organizations.
2. To appreciate the ethical aspects that govern the profession.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN INSURANCE

General Education Requirements	24 credits
Major Requirements	<u>34 credits</u>
Total	61

General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computing Technologies	3
GEMA 1200	Fundamentals of Algebra	3
GEHS 2010	Historical Process of Contemporary Puerto Rico or	3
GEEC 2000	Entrepreneurial Culture	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

Institutional Chaplaincy (AA)

The Associate of Arts Degree in Institutional Chaplaincy aspires to develop religious professionals committed with Institutional Chaplaincy, and who have the competencies, knowledge, skills and ministerial ethical attitudes that enable them to carry out effective interventions in the clinical, prison, educational, labor and ecclesiastical environment, among others.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know history and the fundamental principles Clinical Chaplaincy in the United States, Puerto Rico and Ibero-America.
2. Demonstrate knowledge of the techniques of “fatigue by compassion”.
3. Know the techniques of intervention and handling of crises.
4. Know the theories of pastoral care in different institutional clinical scenarios.

Skills

1. Develop strategic plans of spiritual/ pastoral care.
2. Design care plans with clinical-religious contents according to the modern techniques approved by the School of Pastoral Supervisors and Therapists.
3. Contextually apply the basic theories of institutional the clinical chaplaincy.
4. Implement the theories of pastoral care in different institutional scenarios.
5. Use techniques of intervention and administration of crises in group processes.

Attitudes

1. Show sensitivity and empathy within the religious plurality.
2. Appreciate tolerance for integration and work in interdisciplinary groups.

The Fajardo and Metropolitan campuses are authorized to offer this Program. In addition, the Metropolitan Campus is authorized to offer the associate degree at its University Center in Caguas.

REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN CHAPLAINCY

General Education Requirements	24 credits
Major Requirements	<u>36</u> credits
Total	60

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 - 36 credits

CHAP	1101	History of Chaplaincy	3
CHAP	1102	Theory of Institutional Chaplaincy	3
CHAP	2101	Spirituality, Religion and Mental Health	3
CHAP	2102	Theological Reflection Methods Clinical-Pastoral	3
CHAP	2103	Theories of the Pastoral Clinical Education	3
CHAP	2104	Didactic Theories and their Clinical Application to Chaplaincy	3
CHAP	2105	Intervention and Management of Crisis	3
CHAP	2106	Intervention in Pastoral Care	3
CHAP	2107	Pastoral Care and Social Crisis	3
CHAP	2108	Professional Practice	3
CHAP	2109	Integration Seminar	3
PSYC	1051	General Psychology I	3

International Business (BBA)

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 Metropolitan Campus is authorized to offer this Program by the modality of online learning.

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	<u>3 credits</u>
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	2101	Corporate Finance I	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	Business Communication in Spanish	
		or	
OMSY	3040	Business Communication 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

Management and Organizational Innovation (BBA)

The Management and Organizational Innovation study program is designed to provide the student with the principles, concepts, and applications of this discipline. The Program's objective aspires the development of managerial competencies, aimed at organizational transformation.

Profile of the Competencies of the Graduate

The Baccalaureate Program in Business Administration in Management and Organizational Innovation is designed to develop the competencies which allow the student to:

Knowledge

Demonstrate knowledge and understanding of:

1. the functions and management theories of an administrator.
2. the main organizational designs, ranging from the traditional to contemporary ones.
3. the advantages of innovations and organizational changes.
4. the technological advances that influence contemporary organizations.

Skills

1. Develop innovative strategies in achieving organizational objectives.
2. Express capability in using innovative and creative approaches to problem solving.
3. Demonstrate the ability to maintain effective interpersonal relationships inside and outside the company.
4. Use technology to generate necessary reports for the planning, financial control and decision-making processes.

Attitudes

1. Exhibit a high degree of ethics, responsibility, and commitment as a leader.
2. Recognize continuous learning as a determining factor in the understanding and transformation of work environments.
3. Recognize entrepreneurship as a work alternative.

The student must pass the required core and concentration courses with a minimum grade of C.

The Ponce Campus is authorized to offer this Program through the Online Learning modality.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN MANAGEMENT AND ORGANIZATIONAL INNOVATION

General Education Requirements	48 credits
Core Course Requirements	38 credits
Major Requirements	35 credits
Elective Courses	<u>3 credits</u>
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 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
BADM	4300	Managerial Economics	3
FINA	2101	Corporate Finance I	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 Statistic	3
MKTG	1210	Introduction to Marketing	3

Major Requirements - 35 credits

BADM	2650	Human Behavior in Organizations	3
BADM	3313	Mercantile Law	3
BADM	3330	Human Resource Management	3
BADM	3820	Managerial science	3
ENTR	2200	Fundamentals of Entrepreneurship	3
ENTR	3900	Entrepreneurial and Managerial Strategies	3
MGOI	2100	Organizational Design	3
MGOI	3240	Ethics and Social Responsibility	3
MGOI	3300	Leadership and Organizational Change	3
MGOI	3400	Organizational Communication	3
MGOI	4245	Innovation and Creativity	3
MGOI	4900	Management Simulation	2

Managerial Economics (BBA)

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.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

To demonstrate knowledge and understanding of:

1. the dynamics and causes of the changes that happen in the national and international markets and how these affect the operations of the company.
2. the processes related to the enterprise operation in all the links of the production-distribution chain and their interaction in the different markets.
3. the possible effects of public policies on the enterprise economic activity.

Skills

1. To identify the quantitative tools applicable to the analysis of the contemporary economic phenomena.
2. To evaluate the competitive position of the company and its possibilities for growth.
3. To demonstrate the capacity for clear, precise and logical communication on economic subjects.
4. To produce reports, graphs and data bases that can be used in the processes of management and control of the company, using the appropriate technology.

Attitudes

1. To value the social responsibility of the enterprise leader.

The Metropolitan Campus is 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	<u>3 credits</u>
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	2101	Corporate Finance I	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	Business Communication in Spanish or	
OMSY	3040	Business Communication 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	3240	Mathematics for Decision-Making	3
MAEC	3330	Economic Development of Puerto Rico	3
MAEC	4220	Introduction to Econometrics	3
FINA	2101	Corporate Finance I	3
FINA	3235	Money and Banking	3
FINA	3300	Financial Markets	3
FINA	3700	Fundamentals of Investments	3
MKTG	4243	Marketing Research	3
BADM	3340	Management Policies and Strategies	3

Marine Sciences (BS)

The Bachelor of Science in Marine Sciences presents an interdisciplinary curriculum, that aspires to develop in the student the knowledge, skills and fundamental attitudes of the marine sciences, and the application of these to environmental scientific research, to the management of marine resources, the responsible use of these, and the conservation of the marine and coastal ecosystems.

Profile of the Competencies of Graduates

The Program is designed to develop the competencies that will permit students to demonstrate:

Knowledge

Know and understand:

1. General aspects in mathematics, physics, geology, chemistry, and biology related to the marine sciences.
2. The chemical, physical, geological and biological processes, and the anthropological aspects that occur in the coastal and marine environment.
3. The general structure of the Caribbean coastal and marine ecosystems.
4. The core concepts of the different sub-disciplines of the marine sciences.
5. The role of the different local, federal and international agencies and organizations in research, management and the protection of the marine and coastal environment, and its different components.
6. Research methods applied to the marine sciences.

Skills

1. Apply the general knowledge of natural sciences to the critical interpretation of data and information about the Caribbean coastal and marine ecosystems.
2. Use techniques and methods of basic research applied to the marine sciences.
3. Identify the impact of public policies on health, management and protection of the marine and coastal environment.
4. Recognize the processes of use and management of marine resources, and be prepared to contribute information that supports the design of strategies for the responsible use and conservation of the marine and coastal ecosystems.

Attitudes

1. Understand the legal and ethical aspects of the discipline.
2. Act as a sensible professional in regards to marine and costal environmental problems.
3. Properly incorporate themselves into the pertinent work group, while respecting the values of honesty, social wellbeing and professional ethics.

The Bayamón Campus is authorized to offer this program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN MARINE SCIENCES

General Education Requirements	45 credits
Major Requirements	19 credits
Related Requirements	52 credits
Prescribed Distributed Requirements	6 credits
Elective Courses	<u>3 credits</u>
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 of this Program will take GEMA 1200 in the category of Basic Skills in Mathematics. Students of this Program are exempt from taking courses in the Scientific and Technological Context category.

Major Requirements - 19 credits

MASC	1600	Fundamentals of Oceanography	3
MASC	2610	Introduction to Geology	3
MASC	3600	Marine Biology	3
MASC	3603	Marine Biology Laboratory	1
MASC	3650	Advanced Oceanography	3
MASC	3930	Marine Research Methods	3
MASC	4050	Marine Resource Conservation and Management	3

Related Requirements – 52 credits

BIIN	3220	Biochemistry	3
BIOL	1101	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	2010	Fundamentals of Plant and Animal Biology	4
BIOL	2153	Biostatistics	3
BIOL	3010	Genetics	3
BIOL	3503	Ecology	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
MATH	1500	Precalculus	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

Distributive Prescribed Requirements – 6 credits

Students will select six (6) credits from the following courses.

BIOL	4403	Evolution	3
BIOL	4604	Cellular and Molecular Biology	3
MASC	2630	Diving in Marine Sciences	3
MASC	2640	Nautical Sciences	3
MASC	3610	Marine Botany	3
MASC	3620	Ichthyology	3
MASC	397_	Special Topics	3
MASC	4030	Coral Reef Ecology	3
MASC	4040	Biology of Marine Mammals, Birds and Turtles	3
MASC	4610	Coastal Geomorphology	3
MASC	4910	Practicum in Marine Sciences	3
MASC	4930	Marine Research	3
MATH	2250	Calculus for Biology and Environmental Sciences	3

Minor in Marine Sciences

The Bayamón Campus is authorized to offer this minor.

This minor may only be declared by students admitted to one of the bachelor's programs in natural sciences or related areas.

REQUIREMENTES FOR THE MINOR IN MARINE SCIENCES - 18 credits

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

MASC	1600	Fundamentals of Oceanography	3
MASC	2610	Introduction to Geology	3
MASC	3600	Marine Biology	3
MASC	3650	Advanced Oceanography	3

And select two (2) courses from the following courses:

MASC	2630	Diving in Marine Sciences	3
MASC	2640	Nautical Sciences	3
MASC	3610	Marine Botany	3
MASC	3620	Ichthyology	3
MASC	3930	Marine Research Methods	3
MASC	397_	Special Topics	3
MASC	4030	Coral Reef Ecology	3
MASC	4040	Biology of Marine Mammals, Birds and Turtles	3
MASC	4050	Marine Resource Conservation and Management	3
MASC	4610	Coastal Geomorphology	3
MASC	4930	Marine Research	3
MASC	4910	Practicum in Marine Sciences	3

Marketing (BBA)

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.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Demonstrate knowledge on the principles, concepts and practices for decision making in the marketing field.
2. Identify the innovations and changes in the research and technological field.
3. Demonstrate knowledge of the marketing functions that will permit them to perform an analysis of the market.
4. Know the interdisciplinary approaches for the formation a globalizing vision.

Skills

1. Use properly the vocabulary inherent to the marketing field, in Spanish and English.
2. Apply quantitative and qualitative analysis in problem solving in the marketing area.
3. Investigate diverse sources, select relevant material, organize and analyze the information for decision making.
4. Handle situations in team work in the marketing field through the development of critical thought.

Attitudes

1. Exhibit an ethical, legal attitude and one of social responsibility in the process of decision making in the Marketing area.
2. Demonstrate interest in continuous professional development.

The Aguadilla, Arecibo, Bayamón, Fajardo, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Aguadilla and Ponce campuses are also authorized to offer this Program through online learning.

This Program, in the San Germán Campus, is accredited by the *International Assembly for Collegiate Business Education (IACBE)*, located on 11374 Strang Line Road, Lenexa, Kansas, USA.

This Program, in the Bayamón Campus, is accredited by the *Accreditation Council for Business Schools and Programs (ACBSP)* (<https://www.acbsp.org/>).

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	<u>3 credits</u>
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	2101	Corporate Finance I	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	Business Communication in Spanish or	
OMSY	3040	Business Communication in English	3

Major Requirements - 21 credits

MKTG	2220	Marketing Management	3
MKTG	2223	Consumer Behavior	3
MKTG	3230	Integrated 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	Integrated 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 Marketing

Requirements for the Minor in Marketing - 21 credits

Students who wish to take this minor must have GEMA 1200 as a requisite.

The Arecibo and Bayamón campuses are authorized to offer this minor.

MAEC	2221	Basic Statistics	3
MKTG	1210	Introduction to Marketing	3
MKTG	2220	Marketing Management	3
MKTG	2223	Consumer Behavior	3
MKTG	3230	Integrated Marketing Communication	3
MKTG	4240	Contemporary Strategic Marketing	3
MKTG	4243	Marketing Research	3

Minor in Sales

The Arecibo and Bayamón campuses are authorized to offer this Minor.

Requirements of the Minor in Sales - 21 credits

MKTG	1210	Introduction to Marketing	3
MKTG	2220	Marketing Management	3
MKTG	2223	Consumer Behavior	3
MKTG	3230	Integrated Marketing Communication	3
MKTG	3234	Personal Sales	3
MKTG	3235	Sales Management	3
MKTG	3236	Retail Selling	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	Fundamentals of Management	3
MKTG	1210	Introduction to Marketing	3
MKTG	2223	Consumer Behavior	3
MKTG	3230	Integrated Marketing Communication	3
SRIM	1020	Foundations of the Sport and Recreation	3
SRIM	2300	Introduction to Sports Market	3

Mathematics (BA and BS)

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 a program of study for the Bachelor of Arts Degree in Mathematics and another for the Bachelor of Science Degree in Mathematics. The latter has one major: Pure Mathematic.

For admission to this Program, students must have passed MATH 1500, Precalculus, with a minimum grade of C.

Mathematics (BA)

The study program of the Bachelor of Arts Degree in Mathematics provides students the opportunities necessary to acquire the skills, knowledge of the fundamental concepts, the mastery of the mathematical processes and the reinforcement of the ethical values that prepare them to follow a career in mathematics related to teaching at the secondary school level or at any other level in which analytical skills are required. It also, prepares them to continue graduate studies. This Program provides an ample and flexible academic offering that permits students to acquire mastery of the competencies in algebra, analysis and applied mathematics, and aspires to incorporate diverse innovative methods in the curriculum that will respond to the needs and interests of the student in an individual manner.

Profile of the Competencies of Graduates

The program is designed to develop the professional competencies that will permit students to:

Knowledge

1. Demonstrate knowledge and understanding of the concepts and standard mathematical processes (numerical, algebraic and graphical) in a variety of situations.
2. Integrate logical reasoning, analysis, problems solving, and mathematical processes in a variety of pure and applied contexts.

Skills

1. Communicate mathematical knowledge in a correctly and creative manner.
2. Use the appropriate technology to strengthen the understanding of the concepts and the solution of mathematical problems.

Attitudes

1. Affirm the value and the utility of mathematics in all aspects of the daily life and in team work.
2. Affirm the importance of having a proactive attitude towards mathematics, the ethical values of the profession and cultural and linguistic diversity in the labor environment.

The Metropolitan and San Germán campuses are authorized to offer this Program. In addition, the Metropolitan Campus is authorized to offer this Program through online learning.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN MATHEMATICS

General Education Requirements	48 credits
Core Course Requirements	35 credits
Major Requirements	17 credits
Elective Courses	<u>20 credits</u>
Total	120

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 - 35 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	2380	Topics in Geometry	3
MATH	2400	The Language of Mathematics	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
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Mathematics (BS)

The Bachelor of Science in Mathematics is a program aimed at training professionals committed to the service and the discipline they have selected. It proposes to prepare competent professionals who have a theoretical base and who are familiar with the methods of research in mathematics, as well as the areas of mathematical application.

The San Germán Campus is authorized to offer this program.

Proficiency Profile of the Graduates

The Bachelor of Science in Mathematics is designed to develop the skills that will permit the student to:

Knowledge:

1. Identify the fundamentals of mathematics to apply them in problems solution.
2. Distinguish models or applications of mathematics.
3. To know the methods of practical, computational and graphic solution of the most important problems of mathematics, such as linear models, non-linear models, statistical models, combinatorial problems and problems of graph theory.

Skills:

1. Relate different aspects and approaches of a problem to obtain a comprehensive solution.
2. Design and solve mathematical models for different industry and science problems.
3. Use modern technology to solve mathematical problems.
4. Apply computer knowledge and mathematical concepts to solve problems of the discipline.

Attitudes:

1. Explain the importance of showing ethical, responsible behavior, respect for colleagues and the quest for an excellence service to society through their profession as a mathematician.
2. Ponder the importance of being part of the mathematical community, of participating in appropriate forums, and of belonging to professional associations that advance knowledge.
3. Assess the need to stay updated in the discipline and with the technological advances that affect the profession.

The San Germán Campus is authorized to offer this program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MATHEMATICS

General Education Requirements	48 credits
Major Requirements	68 credits
Elective Courses	<u>6 credits</u>
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.

Core 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	3130	Theory of Numbers	3
MATH	3250	Calculus III	3
MATH	3350	Linear Algebra	3
MATH	3400	Differential Equations	3
MATH	3080	Topics in Geometry	3
MATH	4151	Numerical Analysis I	3
MATH	4391	Abstract Algebra I	3
MATH	4550	Advanced Calculus	3
MATH	4970	Integration Seminar	1
MATH	4___	(2) Math Courses at the 4000-level	6
COMP	2120	Programming Logic	3
COMP	2315	Structured Programming	3
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

Elective Courses - 6 credits

Minor in Mathematics

(Intended for students of Engineering Programs)

The Bayamón Campus is authorized to offer this minor.

Requirements for the Minor in Mathematics - 18 credits

MATH	2000	Discrete Methods	3
MATH	3091	Mathematical Statistics	3
MATH	3350	Linear Algebra *	3
MATH	4151	Numerical Analysis	3
MATH	4391	Abstract Algebra	3
MATH	4550	Advanced Calculus	3

* The students of Industrial Engineering who take course MATH 3350 - Linear Algebra for their major, must take instead course MATH 3250 - Calculus III.

Minor in Statistics

The minor in statistics is intended for all students who wish to enter this field, including those committed to research work or to the implementation of statistical methods, as well as those that wish to expand in the knowledge of the aspects related to the analysis of statistical information and its application.

The Metropolitan Campus is authorized to offer this minor.

Requirements for the Minor in Statistics - 20 credits

MATH	1500	Precalculus *	5
MATH	2100	Introduction to Probability and Statistics	3

MATH	2200	Combinatory Analysis and Probability	3
MATH	2300	Statistical Inference	3
MATH	3000	Sampling Techniques	3
MATH	3100	NonParametric Statistics	3

*Los students whose training program does not require GEMA 1200, must take the same or have an equivalent course of Algebra before taking MATH 1500.

Medical Sonography in Cardiovascular Sonography (BS)

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 a health related profession. 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.

Since sonography is a health-allied science, it uses the modality of ultrasound to assess the well-being of the patient through the diagnosis, analysis and monitoring of diseases or medical procedures.

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.

Program Goals

The Program of Medical Sonography in Cardiovascular Sonography has these goals:

1. To develop medical sonographers focused on mastering the required competences of the discipline, in the context of scientific, humanistic and technological culture.
2. Contribute to the development of skills in the handling of instrumentation and appropriate tracking methods, so that the good management of the patient can be ensured while performing diagnostic quality work.
3. To train medical sonographers, capable of integrating the theoretical, technological, and protocol knowledge related to the tracking and identification of normal and variable pathological structures in the clinical scenario and within the framework of ethical, legal and social responsibility that regulates the profession.

Program Objectives

The Bachelor of Science in Medical Sonography in Cardiovascular Sonography has the following objectives:

1. Use physics applications and illustrate how these can help in obtaining quality images that lead to a safer and more accurate diagnosis.
2. Apply technological advances as resources to demonstrate sonographic anatomy and detect pathological processes that can be observed through compliance with laws, regulations, and health related policies.
3. Develop a medical sonographer who is committed to the patient's medical care needs by integrating their ethical, legal, and social knowledge and the problem solving process.

Proficiency Profile of the Graduate

The Program is designed to develop the competences that allow the student to:

Knowledge

1. Identify solutions from the knowledge of ultrasound physics, medical and cardiovascular sonography.
2. Recognize the aspects associated with the selection of instrumentation, control and adjustment of factors related to the sonographic unit.

3. Examine the execution of the tracking, protocol and instrumentation processes necessary to carry out the different sonographic studies.

Skills

1. Use medical and cardiovascular sonography solutions in the care and management of the patient during the performance of clinical cases.
2. Select the appropriate instrumentation and effectively handle the ultrasound equipment.
3. Draft the preliminary reports, according to the tracking process and sonographic protocol.

Attitudes

1. Assess the necessary elements for the performance of sonographic and cardiovascular studies, considering the regulatory, technical, protocol and tracking aspects involved in the profession.
2. Assume leadership roles and professional responsibility when conducting sonographic and cardiovascular studies.
3. Promulgate the ethical commitment, preparation and professional development in the field of medical sonography.

Admission Requirements

Candidates seeking to enter the Bachelor of Science Program in Medical Sonography must meet the following requirements:

1. Hold an associate's degree in a health related profession from an accredited institution that includes a mathematics course and an anatomy and physiology course
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
 - Certification of Law 300, as required

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	60 credits
General Education Requirements	21 credits
Major Requirements	48 credits
Elective Courses	<u>3</u> credits
Total	132

General Education Requirements - 18 credits

To receive the Bachelor of Science Degree in Medical Sonography, students must approve 21 credits in General Education in additiona to the 24 credits approved for the Associate Degree.

Major Requirements - 48 credits

SONO	3000	Basic Principles of Ultrasound	3
SONO	3010	Ultrasound Physics I	3
SONO	3015	Ultrasound Physics II	3
SONO	3021	Abdomen Sonography	3
SONO	3022	Pediatric and Adult Pelvic Sonography	3
SONO	3024	Obstetric Sonography	3
SONO	4000	Special Sonographic Studies	3
SONO	4010	Musculoskeletal Sonography	3
SONO	4911	Ultrasound Internship I	3
SONO	4912	Ultrasound Internship II	3
SONO	4913	Ultrasound Internship III	3
SONO	4045	Cardiovascular Sonography	3
SONO	4050	Introduction to Echocardiography	3
SONO	4055	Cardiovascular Pathophysiology	3
SONO	4065	General Vascular Sonography	3
SONO	4075	Advanced Vascular Sonography	3

Minor in Musculoskeletal Sonography

The Ponce Campus is authorized to offer this minor.

Requirements for the Minor in Musculoskeletal Sonography- 18 créditos

SONO	3005	Anatomy and Pathophysiology MSK	3
SONO	3010	Ultrasound Physics I	3
SONO	3011	Sonography MSK in the Upper Extremities	3
SONO	3012	Sonography MSK in the Lower Extremities	3
CTMR	4010	Computerized Tomography MSK	3
CTMR	4011	Magnetic Resonance MSK	3

Medical Technology (BS 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 excellent academic education to prepare medical or scientific clinical laboratory technologists with the knowledge, skills, and attitudes necessary in a clinical laboratory science professional beginning 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) and it has 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 February. 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 and the American Society for Clinical Pathologists (ASCP). The Programs have affiliations established with different clinical laboratories where students may complete their clinical practice. These facilities are certified by agencies recognized by NAACLS, such as the Department of Health, the Clinical Laboratory Improvement Amendments (CLIA), and the Joint Commission of Hospital Accreditation (JCHA).

The Bachelor of Science degree in Medical Technology and the Professional Post Bachelor Certificate are offered.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

1. Demonstrate knowledge and understanding of the principles and methodologies of clinical laboratory services performed for all major areas in the laboratory
2. Interpret the principles and practices of administration, supervision, quality assessment, instrumentation, education methodologies, safety, regulations and laws corresponding to laboratory sciences.

Skills

1. Evaluate the fundamental concepts of clinical chemistry, hematology and hemostasis, immunology, blood bank, microbiology, urinalysis and body fluids to correlate them with the analysis of laboratory tests and decision making.
2. Provide solutions to problems related to the performance of laboratory tests.
3. Evaluate processes for the accuracy of laboratory results through statistical methods.
4. Design research projects and clinical studies with the purpose of disseminating the results.

Attitudes

1. Apply ethical principles and commit to their professional development.
2. Serve patients, the public, and members of the health team by applying effective communication skills.

Admission Requirements

1. It is required to have the following courses or their equivalent approved.
 - 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

In addition, students who opt for the bachelor's degree in Medical Technology must have approved the requirements of general education or its equivalent as established in the academic requirements section of the bachelor's degree in Science in Medical Technology.

2. Completion of an application form and submission of an official academic transcript from all universities attended.
3. Three (3) letters of recommendation from faculty members. The scores obtained will be considered in the admission formula for the selection of the candidate.
4. A minimum general academic grade point index of 2.5 and in biology, chemistry, mathematics and physics courses. The grade point index obtained will be considered in the admission formula for candidate selection.
5. 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.
6. Take an academic test offered by the school, for the purpose of checking the knowledge and skills related to the academic requirements in part number 1 of the admission requirements. The scores obtained will be considered in the admission formula for the selection of the candidate.
7. After being admitted to the Program, deliver the following documents:
 - a. Certificate of Health
 - b. Evidence of vaccination or immunization against Hepatitis B and varicella.
 - c. Evidence of a current medical plan
 - d. Negative Certification of Criminal Background validated
 - e. For the clinical practice the doping test is required.
 - f. Student Card
 - g. Other documents requested by some practice centers

It is the 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, the students will be selected by a committee composed of two professors and the director of the School of Medical Technology, in a competitive manner, according to the program's capacity.

To enroll in the concentration courses to complete the baccalaureate degree or professional certificate (post-baccalaureate) in Medical Technology requires that the student has been accepted into the School.

External 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 with 3 years or more of university studies who come from other accredited universities and who apply for admission to the School to finish the bachelor's degree in Medical Technology at this University may submit the following approved courses, approved with a minimum of C, to the admissions committee for consideration to validate the requirements of the General Education Program of the Institution:

	Credits
English	9
Spanish	9
Social Sciences	6
Humanities	6
Religion	3
Mathematics/Computers	9
Total	42

These general education courses in addition to the core requirements and concentration of the Bachelor of Science in Medical Technology, will be considered for the granting of the baccalaureate degree.

Internal Transfers

The transfer process will be carried out only if the student is admitted to the School in accordance with the admission requirements and the available space.

Retention Requirements

All students must comply with the satisfactory academic progress standards established in the General Catalog of the Inter-American University. In addition, you must meet the following requirements established by the School and published in the Student Handbook of the Medical Technology Program.

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, laboratories, and clinical practice is compulsory. Unjustified absences, as established for each course, are sufficient reason for the dismissal of a student.

C. Conduct

Students must comply at all times with the established norms, policies and procedures of the Program, as established 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.

Graduation Requirements

1. Approve each theory and practice course with a minimum execution criterion of 75%.
2. Minimum overall graduation average of 2.50.

Upon successful completion of the Program, the graduate is eligible to take the revalidation exams offered by the Board of Examiners of Medical Technologists of Puerto Rico and the American Society of Clinical Pathologists (ASCP).

After passing the revalidation exam, the student is considered a certified Medical Technologist.

The granting of the academic degree by the Institution does not depend on the graduate passing exams of revalidation.

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

Total	<u>46</u> credits 46
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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 (BS)

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

Admission to the Bachelor of Science in Medical Technology will be made only if the student is admitted to the Program.

Students of the baccalaureate programs in Natural Sciences can apply for admission to the Bachelor of Science in Medical Technology program once they meet the academic requirements of the baccalaureate degree presented along with the other requirements for admission to the School.

The general academic, core and elective courses of the baccalaureate must be completed within the first three years of the baccalaureate of your selection. If admitted to the Program and satisfactorily complete the concentration courses, the student will receive a Bachelor of Science degree in Medical Technology.

Students who are not admitted to the Medical Technology program can complete a Bachelor of Science and apply again to the School to compete for the Professional Certificate Program (post-baccalaureate) in Medical Technology.

Only students admitted to the Medical Technology program can use the code assigned by the University to identify the academic program (165).

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
Elective Courses	<u>3</u> credits
Total	150-151

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 2030 of the Scientific and Technological Context category, and the course GEHP 3000 of the Health and Quality of Life.

Core Course Requirements – 59 or 60 credits

BIOL	1101	General Biology I*	3
BIOL	1102	General Biology II*	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	1104	Biology Skills Laboratory II	1
BIOL	2103	Zoology	3
BIOL	1104	Biology Skills Laboratory II	1
BIOL	3010	Genetics	3
BIOL	3105	General Microbiology*	4
BIOL	3106	Human Anatomy and Physiology*	4
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.

** The MATH 1500 Precalculus (5 credits) can be accepted as long as the student has a minimum of 6 credits in additional mathematics to the GEMA 1200.

Major Requirements - 46 credits

MEDT	4501	Laboratory Operation I: 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 Diagnosis in Infectious Diseases	4
MEDT	4585	Clinical Parasitology	2
MEDT	4593	Laboratory Operation II: Laboratory Administration, Ethics and Education	2
MEDT	4595	Advanced Seminar and Clinical Research	1
MEDT	4915	Clinical Practice in Blood Banking	3
MEDT	4916	Clinical Practice in Serology, Immunology	2
MEDT	4921	Practice in Clinical Chemistry	4
MEDT	4922	Clinical Practice in Hematology and Coagulation	4
MEDT	4923	Clinical Practice in Microbiology	4
MEDT	4924	Clinical Practice in Urinalysis and Parasitology	2

Elective Courses - 3 credits

Microbiology (BS)

The Bachelor of Science degree in Microbiology is interdisciplinary. It integrates the areas of natural science and applies them to the understanding of microorganisms and their diverse functions. The characteristics of the different groups of microorganisms, their growth and development, the environmental interactions and their importance are studied. The Program aims to form graduates that are proficient in the use of microbiological techniques and chemical analyses. Emphasis is given to the application of asepsis measures, security in a controlled environment, research design and data analysis.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Recognize the importance and the diversity of microorganisms.
2. Describe the characteristics and structures of microorganisms.
3. Identify the diverse forms of growth, development, nutrition and metabolism of microorganisms.
4. Identify the way in which microorganisms interact with their environment and the consequences of these interactions.
5. Identify the microorganisms and their mechanisms of pathogenicity, as well as their immune response in the guest.
6. Mention the epidemiological factors that determine the course and complications of infectious diseases.
7. Describe the genetic control mechanisms used by the microorganisms to regulate their metabolism and growth.
8. Describe the action mechanisms of the chemical and physical agents used in the control of growth or microbial activity in diverse environments.
9. Specify the beneficial and detrimental roles that microorganisms play in their relation with human beings.

Skills

1. Apply the different techniques of dealing with microorganisms for their isolation, culture, observation, identification and control.
2. Adopt the necessary safety measures, laws, and regulations for the optimal operation in the work environment.
3. Prepare oral presentations and written scientific documents related to the discipline using effective communication mechanisms.
4. Interpret immunological test results correctly.
5. Identify, based on clinical situations, the infectious processes and the related etiological agents.
6. Perform a complete scientific research.

Attitudes

1. Show respect for the environment and their interrelation with it.
2. Appreciate a renovated culture in their discipline and related areas.
3. Defend the ethical and moral values in the use and management of microorganisms in research and industrial processes.
4. Show receptivity to work in a planned and organized form in interdisciplinary groups at the professional or community level.
5. Appreciate the role that microorganisms play as study models and as adverse and beneficial agents.

The Aguadilla, Bayamón, Fajardo, 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	68-69 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>3 credits</u>
Total	122-123

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 – 68-69 credits

MICR	3211	Microbial Physiology	3
MICR	4010	Microbial Ecology	3
MICR	4505	Microbiological Application Techniques	2
MICR	4955	Integration Seminar in Microbiology	1
BIOL	1101	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
BIOL	1104	Biology Skills Laboratory II	1
BIOL	3010	Genetics	3
BIOL	3105	General Microbiology	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	4220	Biochemistry*	4
		or	
BIOL	4604	Cellular and Molecular Biology	3
MATH	1500	Precalculus	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

* Students who take course CHEM 4220 as a required major course will take course CHEM 3320 as a prescribed distributive course.

Prescribed Distributive Requirements - 6 credits

Select six (6) credits from the following courses:

BIOL	2153	Biostatistics	3
BIOL	3106	Human Anatomy and Physiology	4
BIOL	3213	Parasitology	3
BIOL	3309	Food Microbiology	3
BIOL	4306	Virology	3
CHEM	3320	Analytical Chemistry	4
MICR	4910	Practice	2

Minor in Microbiology

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

Requirements for the Minor in Microbiology - 20 credits

MICR	3211	Microbial Physiology	3
MICR	4010	Microbial Ecology	3
MICR	4505	Microbiological Application Techniques	2
BIOL	4303	Mycology	3
BIOL	4305	Medical Microbiology	3
BIOL	4433	Industrial Microbiology	3

Select a course from the following (3 credits):

BIOL	3405	Immunology	3
BIOL	3213	Parasitology	3
BIOL	3309	Food Microbiology	3
BIOL	4306	Virology	3

Mobile Device Programming (AAS)

The Associate of Applied Sciences Degree in Mobile Device Programming aspires to train professionals in the development of applications for mobile devices directed to diverse uses and international exposition. It provides an innovating and flexible programmatic vision that promotes the development of students with the purpose of developing their cognitive, creative and ethical capacities, as well as the analysis necessary to perform in the industrial world of contemporary programming. It provides an ample base to continue studies in different specialties of the disciplines related to computer science.

Profile of the Competencies of Graduates

This program is designed to develop the professional competencies that will permit students to:

Knowledge

1. Know the components and the basic elements of a mobile information system and the principles that govern the data processing of these systems.
2. Identify the different programming languages of mobile devices.

Skills

1. Design and execute high-level languages programs for mobile devices.
2. Plan and apply strategies for solving problems inherent to the discipline of mobile device computation.

Attitudes

1. Demonstrate a positive attitude towards the ethical and legal values inherent to the profession.

The Metropolitan Campus is authorized to offer this program.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCES DEGREE IN MOBILE DEVICE PROGRAMMING

General Education Requirements	24 credits
Major Requirements	<u>33 credits</u>
Total	57

General Education Requirements – 24 credits

Twenty-four (24) credits are required as established in the General Catalog in the section of General Education Requirements for Associate Degrees. The students of this program will take GEMA 1200 in the Basic Skills in Mathematics category.

Major Requirements – 33 credits

MOPR	1000	Introduction to the Technology, Development and Design of Mobile Devices	3
MOPR	1201	Development Of Mobile Applications Android 1	3
MOPR	1202	Development Of Mobile Applications Android 2	3
MOPR	2001	Development Of Mobile Applications Apple 1 IOS	3
MOPR	2002	Development Of Mobile Applications Apple 2 IOS	3
MOPR	2101	Development of Mobile Applications Phone Windows 1	3
MOPR	2102	Development of Mobile Applications Windows Phone 2	3
MOPR	2970	Seminar in Programming of Mobile Devices	3
COMP	2120	Programming Logic	3
COMP	2315	Structured Programming	3
SBAD	2110	Introduction to Small Businesses Administration	3

Multidisciplinary Studies (AA)

The Associate of Arts in Multidisciplinary Studies is intended to provide students with an integral formation through the development of knowledge, skills, and attitudes that strengthen their professional training through multidisciplinary studies. The degree prepares professionals who address the different problems and situations that affect society from a humanistic frame of reference.

The program integrates different areas of knowledge that include mastery of basic skills, disciplines of the humanities, language arts, and the social sciences. In addition, it provides students with the possibility of pursuing studies leading to a Bachelor's degree in Multidisciplinary Studies or in other fields of knowledge.

The program is designed to develop the competencies that allow a student to:

Knowledge

Demonstrate knowledge and understanding of:

1. the fundamental aspects related to history, the contributions of religions to civilization, the development of philosophical thought, and the cultivation of an artistic sensibility.
2. human relations from a psychosocial, global and multicultural perspective.

Skills

1. Develop verbal and written communication skills in Spanish and English.
2. Use the skills of logical thinking, argumentation and rhetoric that apply to all bodies of knowledge.
3. Practice self-directed learning and intellectual independence.

Attitudes

Demonstrate:

1. responsibility as an entity of a changing, global and pluralistic society.
2. responsibility and ethical and humanistic commitment in response to the changing needs of society.
3. appreciation for the development of a culture of peace, respect for gender differences and human dignity.

The Arecibo Campus is authorized to offer this Program.

REQUIREMENTS OF THE ASSOCIATE DEGREE IN MULTIDISCIPLINARY STUDIES

General Education Requirements	24 credits
Specialization Requirements	<u>35</u> credits
Total	59 credits

General Education Requirements – 24 credits

GESP	Spanish	6
GEEN	English	6
GEMA 1000	Quantitative Reasoning	3
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computing Technologies	3
GEHS 2010	Historical Process of Contemporary Puerto Rico or	3
GEEC 2000	Entrepreneurial Culture	3

Specialization Requirements - 35 credits

GESP	2203	Literature and World View	3
ARTS	1102	Technical Foundations and Drawing Practice	4
ARTS	1500	Acting	3
ENGL	2076	Reading and Writing of Technical Texts	3
HIST	2220	Puerto Rico and the Insular Caribbean in the 20th Century	3
HIST	2035	Latin America since its Independence	3
MUSI	1111	Rudiments and Auditory Training I	2
MUSI	1112	Rudiments and Auditory Training II	2
PHIL	2013	Types and Problems in Philosophy	3
PHIL	2354	Modern Logic	3
RELI	2013	Compared Religions	3
SPAN	3020	Writing Workshop	3

Multidisciplinary Studies (BA)

The Bachelor of Arts degree in Multidisciplinary Studies is a program characterized for its nontraditional approach. It aims to prepare students to enter the world of work, continue graduate studies, and it develops an excellent professional as a world citizen.

The curriculum of this program has courses of the major that include branches of knowledge related to the humanities and social sciences, and courses in English and Spanish communication skills. This preparation serves as a solid foundation for the formation of students with knowledge, skills and aptitudes of a humanist nature necessary for the development of a better society.

The program provides the flexibility with which students develop their major in multidisciplinary studies by taking elective courses in different departments, University campuses, and in other institutions of the country or through international exchange programs. It permits students to acquire a personal, as well as a professional preparation in harmony with their interests and aptitudes and which, at the same time, responds to the needs of the local and world society.

Specific Admission Requirements for Internal and External Transfer Students

The students of other programs of Inter American University of Puerto Rico, of other accredited universities or schools may enter the Bachelor's Program in Multidisciplinary Studies offered by the Humanistic Studies Department if they fulfill the admission requirements of Inter American University of Puerto Rico.

Graduation Requirements

In addition to taking all the required courses, students must have approved the major courses with a minimum grade of C.

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

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN MULTIDISCIPLINARY STUDIES

General Education Requirements	54 credits
Major Requirements	44 credits
Elective Courses	<u>24 credits</u>
Total	122

General Education Requirements - 54 credits

Fifty-four (54) General Education credits are required for this Program. The students will take GEEC 2000 in the Entrepreneurial Culture category. In addition to GEHS 2010, students will take: GEHS 3020, 4020 and 4030 in the Historical and Social Context category; only the course GEPE 4040 in the Philosophical and Aesthetic Thought category; and GEST 3020 and 3030 in the Scientific and Technological context category.

Major Requirements - 44 créditos

ARTS	1102	Technical Foundations and Drawing Practice	4
ARTS	1500	Acting	3
CJUS	2070	Human and Civil Rights	3
ENGL	2060	Conversation and Grammar Review	3
ENGL	3025	Writing of Professional Documents	3
MUSI	1111	Rudiments and Auditory Training I	2
MUSI	1112	Rudiments and Auditory Training II	2

PHIL	2354	Modern Logic	3
PHIL	3013	History of Western Philosophy: Ancient and Medieval	3
POLS	1011	Introduction to Political Science	3
POLS	4033	Inter-American Relations	3
PSYC	1051	General Psychology I	3
SOCI	3753	Social Problems of Puerto Rico	3
SPAN	3020	Writing Workshop	3
SPAN	4010	Reading Workshop	3

Minor in Multidisciplinary Studies

Requirements for the Minor - 18 credits

Students must select 18 credits from the following courses:

ARTS	1102	Technical Foundations and Drawing Practice	4
ENGL	2060	Conversation and Grammar Review	3
ENGL	3025	Writing of Professional Documents	3
PHIL	3013	History of Western Philosophy: Ancient and Medieval	3
POLS	1011	Introduction to Political Science	3
SOCI	3753	Social Problems of Puerto Rico	3
SPAN	3020	Writing Workshop	3
SPAN	4010	Reading Workshop	3

Music (BA and BM)

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 in the instrument of their choice, there are preparatory courses that will enable them to satisfy the demands of the required courses.

All students in the Bachelor of Music Degree in Music Education: General-Vocal must comply with the admission requirements, the Satisfactory Academic Progress Norms, the graduation requirements established by the Teacher Education Program (TEP) and with the Music Practice Teaching requirements. Students in this major will take MUED 1091 instead of EDUC 1080, MUED 2080 for EDUC 2890, MUED 3080 for EDUC 3015 and MUED 4915 or 4916 for EDUC 4015.

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 (BA)

The Bachelor of Arts Degree in Music is designed for students who wish to develop a career in music while exploring and studying courses in other disciplines.

With an activity of intense artistic creativity shared with the of Visual Arts faculty, the opportunity to grow in areas other than performance as a musician or educator is facilitated. The program promotes the participation in ensembles and individual classes that allow the development of performance skills in a broad variety of musical styles.

Students will take private classes in their main instrument, in piano, and in another secondary instrument. They will also appear as soloist in recitals, will participate in chamber ensembles, and in larger ensembles, be they choral or instrumental.

Students entering the program will take a placement test in rudiments of music and in their instrument. This test must be approved more with a minimum of 70 percent; otherwise students must take preparatory courses. Preparatory courses exist for those students who need them.

Profile of the Competencies of Graduates: (BA in Music)

The programs are designed to develop the competencies that will permit students to:

Demonstrate knowledge of and understand:

1. The theoretical foundations and appropriate auditory skills to harmonize music on the keyboard or on the guitar.
2. The elements of music as they have evolved through different historical and cultural periods: tempo, melody, harmony, tone, texture and form.
3. The diverse techniques of musical arrangements.
4. The process of musical composition.

Skills

1. Develop their musical quality and the technical skills necessary to obtain an expressive musical execution, by presenting repertoire of varied styles as a soloist, and in sets.
2. Improvise harmonies on the piano or guitar, with transpositions when necessary.
3. Develop skills and apply necessary techniques in direction, to take a score and to prepare it for a practice, by located indicators that will allow it to give form to an appropriate interpretation.
4. Use their auditory skills to detect and correct melodic, rhythmical errors or interpretation errors in a practice.
5. Interpret music at first sight with the necessary exactitude to:
 - a) contribute successfully to the development of the sets in which they participate
 - b) use this knowledge as a learning tool
 - c) select and prepare a repertoire for a practice.
6. Demonstrate capacity to use their conducting technique as a means to communicate an interpretation that is musical and aesthetically convincing.
7. Develop skills to take rhythmical, melodic and harmonic dictation.
8. Develop skills in applications of technology to: o prepare simple Web pages, improvise on MIDI keyboards, compose using sequencers, record and edit sequences in MIDI format, record and edit audio, write and edit musical annotation in a computer.

Attitudes

1. Demonstrate discipline and commitment towards the practice of their instrument by participating effectively as a soloist in recitals, and in sets of several sizes.
2. Form a good documented judgment on the capacity that the historical and cultural context has to influence the musical production of a country.
3. Value Puerto Rican and Latin American music in the planning of their concerts, by demonstrating

- knowledge of its history and musical genres.
4. Value technology as a process, a tool capable of extending their musical and creative capacities.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN MUSIC

General Education Requirements	48 credits
Major Requirements	32 credits
Prescribed Distributive Requirements	18 credits
Elective Courses	<u>22</u> credits
Total	120

General Education Requirements - 48 credits

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

Major Requirements - 32 credits

MUSI	1231-3231	Concert Band I-V	
		or	
MUSI	1241-3241	University Choir I-V	
		or	
MUSI	1251-3251	University Orchestra*	5
MUSI	1 (70-89) 1-2	Instrument I, II	2
MUSI	2 (70-89) 1-2	Instrument III, IV	2
MUSI	1401	Theory and Sight-Reading**	2
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

*For students of violin, viola, cello and contrabass.

**Requires courses MUSI 1111 and 1112 or passing a placement test.

Prescribed Distributive Requirements - 18 credits

Eighteen (18) additional credits, which may be chosen from other music courses, except MUSI 101, 102, 1110, 1111 and 1112.

Music (BM)

Applied Music

The Bachelor of Music Degree in Applied Music is designed for students who want a career as performers.

The study program foments experiences of intense artistic creativity under the personal attention of a specialized faculty, successful in facilitating the access to professional connections that may define the career of the future performer. In addition, the participation in ensembles and individual classes that allow the development of performance skills in a broad variety of musical styles is promoted.

A musical formation is obtained by means of the constant study of the process of the creation of music, its history, literature, analysis techniques, conducting and performance. Under the supervision of a faculty member of applied music, who will also be their academic adviser, students will have the opportunity to take individualized classes in their main instrument, in piano, and in another secondary instrument. Students will appear as soloists in recitals, will participate in chamber ensembles, and in larger ensembles, be they choral or instrumental.

Students entering the program will take a placement test in rudiments of music and in their instrument. This test must be approved more with a minimum of 70 percent; otherwise students must take preparatory courses. Preparatory courses exist for those students who need them.

Profile of the Competencies of Graduates: (B.M in Applied Music)

The programs are designed to develop the competencies that will permit students to:

Demonstrate knowledge of and understand:

1. The theoretical foundations and appropriate auditory skills to harmonize music on the keyboard or on the guitar.
2. The elements of music as they have evolved through different historical and cultural periods: tempo, melody, harmony, tone, texture and form.
3. The diverse techniques of musical arrangements.
4. The process of musical composition solving arguments on the esthetic properties and style of an ample selection of representative literature of the main eras and genres.

Skills

1. Develop their musical quality and the technical skills necessary to obtain an expressive musical execution, by presenting repertoire of varied styles as a soloist, and in sets.
2. Improvise harmonies on the piano or guitar, with transpositions when necessary.
3. Develop skills and apply necessary techniques in conducting, to take a score and to prepare it for a practice, by located indicators that will allow it to give form to an appropriate interpretation.
4. Demonstrate the use of advanced auditory skills that will allow them to read and sing the parts of a musical score for instrumental or vocal groups, for analysis, preparation for a practice or conducting.
5. Interpret music at first sight with the necessary exactitude to:
 - a) contribute successfully to the development of the sets in which they participate
 - b) use this knowledge as a learning tool
 - c) select and prepare a repertoire for a practice.
6. Demonstrate capacity to use their conducting technique as a means to communicate an interpretation that is musical and aesthetically convincing.
7. Develop skills to take rhythmical, melodic and harmonic dictation.
8. Develop skills in applications of technology to: o prepare simple Web pages, improvise on MIDI keyboards, compose using sequencers, record and edit sequences in MIDI format, record and edit audio, write and edit musical annotation in a computer.

Attitudes

1. Demonstrate discipline and commitment towards the practice of their instrument by participating effectively as a soloist in recitals, and in sets of several sizes.
2. Voluntarily attend recitals, concerts, classes, theatrical works and other productions
3. Form a good documented judgment on the capacity that the historical and cultural context has to influence the musical production of a country.
4. Value Puerto Rican and Latin American music in the planning of their concerts, by demonstrating knowledge of its history and musical genres.
5. Value technology as a process, a tool capable of extending their musical and creative capacities.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE IN APPLIED MUSIC

General Education Requirements	48 credits
Major Requirements	62 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>6 credits</u>
Total	122

General Education Requirements - 48 credits

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

Major Requirements - 62 credits

MUSI	2091, 2092, 2093, 2094	Chamber Ensemble I, II, III, IV	4
MUSI	1231-4231	Band I-VII	
		or	
MUSI	1241-4241	University Choir I-VII	
		or	
MUSI	1251-4241	University Orchestra*	
MUSI	1 (70-89) 1, 1 (70-89) 2	Instrument I, II	4
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	1401	Theory and Sight-Reading**	2
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
MUED	4436	Technology in Music Education	3

*For students of violin, viola, cello and contrabass.

**Requires courses MUSI 1111 and 1112 or passing a placement test.

Prescribed Distributive Requirements - 6 credits

Six (6) credits chosen from the following courses

MUSI	101_, 102_	Applied Music: Fundamentals I, II***	2
MUSI	1160-1169	Musical Training	1 credit per course
MUSI	1(70-89)-2(7089)2	Instrument***	maximum of 4 credits 1-4
MUSI	2095, 2096, 2097, 2098	Chamber Ensemble V, VI, VII, VIII	4
MUSI	3975	Special Topics	maximum of 6 credits
Musi	4451, 4452	Composition I, II	6
MUSI	4510 or 4520	Conducting II: Choral or Conducting II Instrumental	2
MUSI	2011, 2012, 2013, 2014	Chamber Ensemble and Vocal Instruction I, II, III, IV	2 credits per course
MUSI	3030, 3031, 3032, 3033	Popular Music Workshop I, II, III, IV	1 credit per course
MUSI	4600	Foundations of Audio-recording	3
MUSI	4901	Recital II	2
		Courses in French, Italian, German and Portuguese	maximum of 6credits

*** It must be an instrument other than student's principal instrument.

Music Education: General Vocal

The Bachelor of Music Degree in Music Education: General-Vocal offers the curricular content required by the Department of Education of Puerto Rico for Teacher Certification in Fine Arts with a specialization in Music Education: General-Vocal, applicable to the elementary and secondary (K-12) levels. Graduates from the program also qualify as teacher in the Specialized Schools of Music. The program is designed for future teachers of voice, piano, guitar, and choir directors.

The study program has been conceptualized under the firm conviction that the perception, understanding and sensitivity towards the art of music are fundamental in the formation of teachers committed to the evolution of music and its teaching. This formation is promoted by means of the study of the processes in the creation of music, including its history, literature, analysis techniques, its conducting and performance.

Participation in the creation of music of a high artistic value is an integral part of the study program. Students will have the opportunity to take individualized classes in their main instrument, also in piano, guitar and in a secondary instrument. They will also participate in chamber ensembles, and in one of the Department's choral ensembles.

The musical knowledge and skills are integrated with theory and practice in the music education courses, and in the education courses. The education courses deal with topics such as: techniques for choral or instrumental teaching, teaching methodologies, technology and teaching experiences.

Students entering the program will take a placement test in rudiments of music and in their instrument. This test must be approved more with a minimum of 70 percent; otherwise students must take preparatory courses. Preparatory courses exist for those students who need them.

All students in the Bachelor of Music Degree in Music Education: General-Vocal must comply with the admission requirements, the Satisfactory Academic Progress Norms, the graduation requirements established by the Teacher Education Program (TEP) and with the Music Practice Teaching requirements. Students in this major will take MUED 1091 instead of EDUC 1080, MUED 2080 for EDUC 2890, MUED 3080 for EDUC 3015 and MUED 4915 or 4916 for EDUC 4015.

Profile of the Competencies of Graduates: (BM Musical Education: General Vocal)

The Bachelor of Music in is designed to develop the competencies that will permit students to:

Demonstrate knowledge and understand:

1. The materials, methodologies, curricular development and technologies to design significant educational experiences.
2. The diverse techniques of musical arrangement.
3. The processes to adapt music by using arrangement techniques for a variety of instrumental and vocal sets.
4. The theoretical foundations and the appropriate auditory skills to harmonize music on the keyboard or the guitar.
5. The main historical periods in the analysis, preparation of scores for practice and performance of representative repertoire of different styles, forms and cultures.
6. The elements of music as they have evolved through different historical and cultural periods: tempo, melody, harmony, tone, texture and form.
7. The process of musical composition, solving arguments on the esthetic properties and style of an ample selection of representative literature of the main eras, genres and composers.
8. The music education curriculum for the elementary and secondary levels and their historical, philosophical, esthetic, methodological, psychological and educational foundations.
9. The particular mechanisms of evaluation and assessment for the teaching of music, appropriate for the elementary and secondary levels.

Skills

1. Interpret music at first sight with the exactitude necessary to contribute successfully to the development of the sets in which they participate and to use that knowledge as an indispensable tool when giving class and when selecting repertoire of different levels of difficulty.
2. Develop their musical quality and the technical skills necessary to obtain an expressive musical performance, when presenting a repertoire of varied styles as a soloist, in sets and as a teacher in the classroom.
3. Demonstrate the capacity to use their conducting technique as a means to effectively communicate an interpretation that is musical and aesthetically convincing.
4. Fortify their skills on the piano keyboard and on the guitar, so that they can use both instruments as additional learning tools for themselves and in the design of experiences for their students in the classroom.
5. Develop skills to take rhythmical, melodic and harmonic dictation.
6. Demonstrate the use of advanced auditory skills that will allow them to read and sing the parts of a musical score for instrumental or vocal groups for analysis, preparation for practice or conducting.
7. Use their auditory skills to detect and to correct melodic and rythmical errors, or those of interpretation in practices and in a classroom.
8. Organize successful practices for instrumental and vocal sets.
9. Develop skills and the necessary technical knowledge in conducting, to take a score and to prepare it for practice, locating indicators that will allow for giving form to an appropriate interpretation.
10. Perform an ample selection of repertoire.
11. Use technology to strengthen the pedagogical and professional work.

Attitudes

1. Form a good documented judgment on the capacity that the historical and cultural context has to influence the musical production of a country.
2. Value Puerto Rican and Latin American music, its history and its musical genres, in the planning of a curriculum that includes a variety of musical experiences, such as playing, creating, listening, improvising, arranging and appreciating, among others.
3. Show commitment with the scope of music education.
4. Regard technology as a process, a tool able to extend their musical and creative capacities.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE IN MUSIC EDUCATION: GENERAL VOCAL

General Education Requirements	48 credits
Core Course Requirements	31 credits
Major Requirements	65 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>3 credits</u>
Total	153

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 or 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 Asthetic Thought category.

Core Course Requirements - 31 credits

MUSI	1401	Teoría and Sight-Reading*	2
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 America Music	2
MUSI	3440	Form and Analysis	3
MUSI	4431	Orquestration and Arranging I	2
MUSI	4500	Conducting I	3
MUED	4436	Technology in Music Education	3

* Requires courses MUSI 1111 and 1112 or the passing of a placement test.

Major Requirements - 65 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	121P or 121G	Applied Music for Non-Majors I	1
MUSI	122P or 122G	Applied Music for Non-Majors II	1
MUSI	2091	Chamber Ensemble I or	
MUSI	221P or 221G	Applied Music for Non-Majors III	1
MUSI	2092	Chamber Ensemble II or	
MUSI	222P or 222G	Applied Music for Non-Majors IV	1
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	4510	Conducting II: Choral	2
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	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
MUED	1091	Field Experience in Music Education I	1
MUED	2080	Field Experience in Music Education II	2
MUED	3080	Clinical Experiences in Music Education	2
MUED	3301	Strategies and Techniques I: General-Vocal	2
MUED	3302	Strategies and Techniques II: General-Vocal	2
MUED	4401	Elementary Methods: the Teaching of Music	3
MUED	4411	Secondary Methods: the Teaching of Music	3
MUED	4915	Student Teaching in Music: General Vocal	4
HIST	3010	Historical Process of United States of America	3

Prescribed Distributive Requirements - 6 credits

Six (6) credits selected from the following courses:

MUED	3303	Vocal Strategies and Techniques III: Diction for Singers	2
MUED	3330	Instrumental Strategies and Techniques I: Strings	
		or	
MUED	3331	Instrumental Strategies and Techniques II: Percussion	
		or	
MUED	3332	Instrumental Strategies and Techniques III: Metals	
		or	
MUED	3333	Instrumental Strategies and Techniques IV: Wind Wood	2
MUSI	1160-1169	Vocal Coaching	1 credit per course
MUSI	2093	Chamber Ensemble III	
		or	
MUSI	2(--)	Applied Music for Non-Majors V (MUSI 321_)	1
MUSI	2094	Chamber Ensemble IV	
		or	
		Applied Music for Non-Majors VI (MUSI 322_)	1
MUSI	2011, 2012, 2013, 2014	Chamber Ensemble and Vocal Instruction I, II, III, IV	2 credits per course
MUSI	3975	Special Topics	1-6
MUSI	4600	Foundations of Audio-recording	3

Music Education: Instrumental

The Bachelor of Music Degree in Music Education: Instrumental offers the curricular content required by the Department of Education of Puerto Rico for Teacher Certification in Fine Arts with a specialization in Music Education: Instrumental, applicable to the elementary and secondary (K-12) levels. Graduates from the program also qualify as teacher in the Specialized Schools of Music.

The study program has been conceptualized under the firm conviction that the perception, understanding and sensitivity towards the art of music are fundamental in the formation of teachers committed to the evolution of music and its teaching. This formation is promoted by means of the study of the processes in the creation of music, including its history, literature, analysis techniques, its conducting and performance.

Participation in the creation of music of a high artistic value is an integral part of the study program. Students will have the opportunity to take individualized classes in their main instrument, and in a secondary instrument. They will also participate in chamber ensembles, and in larger ensembles like the Concert Band, the Choirs, or the University Symphony Orchestra.

The musical knowledge and skills are integrated with theory and practice in the music education courses, and in the education courses. The education courses deal with topics such as: techniques for choral or instrumental teaching, teaching methodologies, technology and teaching experiences.

Students entering the program will take a placement test in rudiments of music and in their instrument. This test must be approved more with a minimum of 70 percent; otherwise students must take preparatory courses. Preparatory courses exist for those students who need them.

All students in the Bachelor of Music Degree in Music Education: Instrumental must comply with the admission requirements, the Satisfactory Academic Progress Norms, the graduation requirements established by the Teacher Education Program (TEP) and with the Music Practice Teaching requirements. Students in this major will take MUED 1091 instead of EDUC 1080, MUED 2080 for EDUC 2890, MUED 3080 for EDUC 3015 and MUED 4915 or 4916 for EDUC 4015.

Profile of the Competencies of Graduates: (BM Musical Education: Instrumental)

The Bachelor of Music in is designed to develop the competencies that will permit students to:

Demonstrate knowledge and understand:

1. The materials, methodologies, curricular development and technologies to design significant educational experiences.
2. The diverse techniques of musical arrangement.
3. The processes to adapt music by using arrangement techniques for a variety of instrumental and vocal sets.
4. The theoretical foundations and the appropriate auditory skills to harmonize music on the keyboard or the guitar.
5. The main historical periods in the analysis, preparation of scores for practice and performance of representative repertoire of different styles, forms and cultures.
6. The elements of music as they have evolved through different historical and cultural periods: tempo, melody, harmony, tone, texture and form.
7. The process of musical composition, solving arguments on the esthetic properties and style of an ample selection of representative literature of the main eras, genres and composers.
8. The music education curriculum for the elementary and secondary levels and their historical, philosophical, esthetic, methodological, psychological and educational foundations.
9. The particular mechanisms of evaluation and assessment for the teaching of music, appropriate for the elementary and secondary levels.

Skills

1. Interpret music at first sight with the exactitude necessary to contribute successfully to the development of the sets in which they participate and to use that knowledge as an indispensable tool when giving class and when selecting repertoire of different levels of difficulty.
2. Develop their musical quality and the technical skills necessary to obtain an expressive musical performance, when presenting a repertoire of varied styles as a soloist, in sets and as a teacher in the classroom.
3. Demonstrate the capacity to use their conducting technique as a means to effectively communicate an interpretation that is musical and aesthetically convincing.
4. Fortify their skills on the piano keyboard and on the guitar, so that they can use both instruments as additional learning tools for themselves and in the design of experiences for their students in the classroom.
5. Develop skills to take rhythmical, melodic and harmonic dictation.
6. Demonstrate the use of advanced auditory skills that will allow them to read and sing the parts of a musical score for instrumental or vocal groups for analysis, preparation for practice or conducting.
7. Organize successful practices for instrumental and vocal sets.
8. Develop skills and the necessary technical knowledge in conducting, to take a score and to prepare it for practice, locating indicators that will allow for giving form to an appropriate interpretation.
9. Perform an ample selection of repertoire.
10. Use technology to strengthen the pedagogical and professional work.

Attitudes

1. Form a good documented judgment on the capacity that the historical and cultural context has to influence the musical production of a country.
2. Value Puerto Rican and Latin American music, its history and its musical genres, in the planning of a curriculum that includes a variety of musical experiences, such as playing, creating, listening, improvising, arranging and appreciating, among others.
3. Show commitment with the scope of music education.
4. Regard technology as a process, a tool able to extend their musical and creative capacities.

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE IN MUSIC EDUCATION: INSTRUMENTAL

General Education Requirements	48 credits
Core Course Requirements	31 credits
Major Requirements	65 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>3 credits</u>
Total	153

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 or 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 Aesthetic Thought category.

Core Course Requirements - 31 credits

MUSI	1401	Teoría and Sight-Reading*	2
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 America Music	2
MUSI	3440	Form and Analysis	3
MUSI	4431	Orquestration and Arranging I	2
MUSI	4500	Conducting I	3
MUED	4436	Technology in Music Education	3

* Requires courses MUSI 1111 and 1112 or the passing of a placement test.

Major Requirements - 65 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	121P or 121G	Applied Music for Non-Majors I	1
MUSI	122P or 122G	Applied Music for Non-Majors II	1
MUSI	2091	Chamber Ensemble	
		or	
MUSI	221P or 221G	Applied Music for Non-Majors III (MUSI 221)	1
MUSI	2092	Chamber Ensemble II	
		or	
MUSI	222P or 222G	Applied Music for Non-Majors IV (MUSI 222)	1
MUSI	1231-32/1251-52	Band or Orchestra I, II	2
MUSI	2231-32/2251-52	Band or Orchestra III, IV	2
MUSI	3231-32/3251-52	Band or Orchestra V, VI	2
MUSI	4231-32/4251-52	Band or Orchestra VII, VIII	2
MUSI	4520	Conducting II: Instrumental	2
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	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
MUED	1091	Field Experience in Music Education I	1
MUED	2080	Field Experience in Music Education II	2
MUED	3080	Clinical Experiences in Music Education	2
MUED	3330	Strategies and Techniques I: Strings	2
MUED	3331	Strategies and Techniques II: Percussion	2
MUED	4401	Elementary Methods: the Teaching of Music	3
MUED	4411	Secondary Methods: the Teaching of Music	3
MUED	4916	Student Teaching in Music: Instrumental	4
HIST	3010	Historical Process of United States of America	3

Prescribed Distributive Requirements - 6 credits

Six (6) credits selected from the following courses:

MUED	3332	Instrumental Strategies and Techniques III: Metals	2
MUED	3333	Instrumental Strategies and Techniques IV: Wind-Wood	2
MUSI	2093	Chamber Ensemble III or Applied Music for Non-Majors V (MUSI 321_)	1
MUSI	2094	Chamber Ensemble IV or Applied Music for Non-Majors VI (MUSI 322_)	1
MUSI	2011, 2012, 2013, 2014	Chamber Ensemble and Vocal Instruction I, II, III, IV	2 credit per course
MUSI	3130, 3131, 3132, 3133	Popular Music Workshop I, II, III, IV	1 credit per course
MUSI	3975	Special Topics	1-6
MUSI	4600	Audio-recording	3

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 Non-Majors	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 1111.

Music Business Management (A)

The Associate Degree in Music Business Management 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.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

To demonstrate knowledge and understanding of:

1. the structures of the contemporary musical industry.
2. the managerial, legal and technological foundations to develop businesses related to the musical industry.

Skills

1. To apply the managerial principles to develop competitive small and medium sized businesses.
2. To communicate effectively the basic strategies of marketing of the diverse musical services.
3. To apply effective managerial strategies for team work.

Attitudes

1. To appreciate the value of the undertaking and the ethical values in the entertainment industry.
2. To creatively visualize the opportunities in the entertainment industry.
3. To recognize the importance of interpersonal relations between artists and managers.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN MUSIC BUSINESS MANAGEMENT

General Education Requirements	27 credits
Major Requirements	<u>36 credits</u>
Total	63

General Education Requirements - 27 credits

GESP	Spanish	6
GEEN	English	6
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computing Technologies	3
GEMA 1200	Fundamentals of Algebra	3
GEHS 2010	Historical Process of Contemporary Puerto Rico or	3
GEEC 2000	Entrepreneurial Culture	3

Major Requirements - 36 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
ITEC	1100	Introduction to Information Technology	3
ENTR	2200	Fundamentals of Entrepreneurship	3
MAEC	2211	Principles of Economics (Micro)	3
MKTG	1210	Introduction to Marketing	3
MUSI	0531	Theory and Sight Singing I	3
MUSI	1563	Group Piano I	
		or	
MUSI	1661	Group Guitar I	2

Natural Sciences (BS)

The Bachelor of Science degree in Natural Sciences aims to prepare professionals in natural sciences with a multidisciplinary approach. The program focuses on the study of the foundations of the natural sciences and is supplemented with the study of courses of specific areas to be determined by the student in agreement with his academic adviser and the approval of the department director. It provides a flexible and innovative programmatic vision, which promotes the integral development of students to expand their cognitive and creative capacities, as well as the critical judgment necessary to perform in the contemporary world.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Describe the basic concepts of the Natural Sciences and Technology.
2. Demonstrate the processes related to the administration, analysis and interpretation of data.

Skills

1. Critically evaluate a scientific article of a primary source.
2. Analyze, synthesize and communicate concepts effectively from a multidisciplinary point of view.
3. Compose written works using scientific information.
4. Use basic scientific equipment. properly
5. Carry out statistic analyzes of experimental data and reach conclusions about these.

Attitudes

1. Recognize the impact of the natural sciences and technology by identifying their responsibilities, purposes and usefulness.
2. Manage processes and related data, guided by ethical principles and a responsible vision of their implications in the field of Natural Sciences and Technology.

Admission Requirements

In addition to the admission requirements established in this Catalog, students of this Program must be interviewed when this is necessary. If an interview is necessary for online learning students who will attend courses outside Puerto Rico, this may be conducted through the means available to students. The interview will be supervised by a proctor in the place where the student is located as determined by the University.

The Aguadilla, Bayamón and Metropolitan campuses are authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN NATURAL SCIENCES

General Education Requirements	48 credits
Core Course Requirements	29 credits
Major Requirements	31 credits
Elective Courses	<u>12 credits</u>
Total	120

General Education Requirements - 48 credits

Forty eight (48) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees. The students of this program will take GEMA 1200 in the Basic Skills in Mathematics category.

Core Course Requirements - 29 crédits

BIOL	1101	General Biology I	3
BIOL	1102	General Biology II	3
BIOL	1103	Biology Skills Laboratory I	1
MATH	1511	Pre calculus I	3
MATH	1512	Precalculus II	3
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

Major Requirements - 31 crédits

Students will take 31 major credits selected from the following disciplines: biology (BIOL), Chemistry (CHEM), Mathematics (MATH), Forensic Science (FORS), Biotechnology (BIOT), Microbiology (MICR), Environmental Sciences (EVSC), Environmental Management (EVMA) or Computer Sciences (COMP). The major requirements will be established in agreement between the student and the academic adviser, with the approval of the department director.

Networks and Telecommunications (BS)

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	<u>3 credits</u>
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
ITEC	1100	Introduction to Information Technology	3
ITEC	1200	Programming Algorithms	3
MATH	1070	Fundamentals of Applied Mathematics	3
MKTG	1210	Introduction to Marketing	3

Nursing (AAS and BSN)

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.

Profile of the Competencies of Graduates

This Associate of Applied Science degree in Nursing is designed to develop the competencies that will permit students to:

Knowledge

1. Demonstrate scientific and humanistic knowledge of the nursing discipline when analyzing biopsycosocial and spiritual aspects in the different stages of growth and development.
2. Know the nursing process as an instrument for making clinical decisions while offering a safe and quality care.

Skills

1. Demonstrate up-to-date clinical skills in therapeutic interventions when you offer care to the client throughout the continuum of health-disease in structured scenarios.
2. Demonstrate care management, coordination skills and effective collaboration as a member of the interdisciplinary team.
3. Use communication skills, critical thinking and the use of technology to maintain the quality of care offered to the client.

Attitudes

1. Demonstrate responsibility and ethical-legal commitment with humanistic care in response to the changing needs of society.
2. Demonstrate responsibility and commitment with their own development and that of the profession.

The Bachelor's of Science in Nursing is designed to develop the competencies that will permit students to:

Knowledge

1. Demonstrate theoretical and practical knowledge integrated into the safe and effective nursing care provided to individuals, families and communities.
2. Know the use of nursing interventions to prevent disease, and to promote, protect, maintain and restore health.
3. Know critical thinking skills to make clinical judgments and to use research findings for the continuous improvement of the nursing practice

Skills

1. Use assessment and therapeutic interventions skills when providing nursing care in diverse scenarios so they can improve the expected health care results.
2. Apply skills of communication, collaboration, critical thought, and the use of technology as a provider and coordinator of care and as a future member of the profession.
3. Act as leaders and managers of the care that you are seeking to provide.

Attitudes

1. Apply humanistic care in the nursing practice to promote protection, optimization and the preservation of human dignity.

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.
2. To be a candidate for admission to the Associate and Bachelor's Program in Nursing, candidates must have a minimum grade point index 2.50 from their high school or place of origin.
3. To be a candidate for admission 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 for awarding the degree.
 - c. Present at the time of admission to the Program evidence of any permanent license they possess.

Requirements of Clinical Practice

To be admitted to a practice agency the following is required:

1. A current certificate of no criminal record issued 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.
4. Evidence of vaccination against chickenpox or chickenpox titer tests.

Some agencies and courses have additional requirements. Students are responsible for complying with any other requirement imposed by the practice agency. Among these are: An updated certificate of CPR, a negative dope test, a nose and throat culture and a negative certificate of sexual offender.

Transfer Requirements:

1. Comply with the admissions requirements for transfer students established in the General Catalog.
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 all Satisfactory Progress Norms established in the General Catalog.
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 a major course with a minimum grade of C in their third intent will be dropped from the Program.

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. All students who are candidates for graduation in the Associate or Bachelor's Nursing program must graduate with a minimum grade point average of 2.50.
4. 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 the board examination.

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. In addition, the Metropolitan Campus is authorized to offer the associate degree at its University Center in Caguas.

The Associate Program of the Aguadilla and Metropolitan campuses is accredited by the *Accreditation Commission for Education in Nursing (ACEN)* (<http://www.acenursing.org>).

The Bachelor's Program of the Aguadilla, Arecibo and Metropolitan campuses is accredited by the *Accreditation Commission for Education in Nursing (ACEN)* (<http://www.acenursing.org>).

The Bachelor's Program of the San Germán Campus is accredited by the *Commission on Collegiate Nursing Education (CCNE)* (<http://www.aacnnursing.org/CCNE>).

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN NURSING

General Education Requirements	24 credits
Major Requirements	<u>41 credits</u>
Total	65

General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computing Technologies	3
GEMA 1000	Quantitative Reasoning	3
GEHS 2010	Historical Process of Contemporary Puerto Rico or	3
GEEC 2000	Entrepreneurial Culture	3

Major Requirements - 41 credits

NURS	1111	Fundamentals of Nursing	4
NURS	1112	Practice of Fundamentals of Nursing	2
NURS	1130	Pharmacology Aspects	3
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 of 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	2361	Fundamentals of Psychosocial Care	3
NURS	2362	Practice of Psychosocial Care	2
NURS	2970	Transition Seminar	1

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN NURSING

General Education Requirements	45 credits
Major Requirements	72 credits
Elective Courses	<u>3 credits</u>
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 and Quality of Life category.

Major Requirements - 72 credits

NURS	1111	Fundamentals of Nursing	4
NURS	1112	Practice of Fundamentals of Nursing	2
NURS	1130	Pharmacology Aspects	3
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 of 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	2361	Fundamentals of Psychosocial Care	3
NURS	2362	Practice of Psychosocial Care	2
NURS	2970	Transition Seminar	1
NURS	3100	Dimensions of Professional Practice	3
NURS	3115	Introduction to the Nursing Research Process	3
NURS	3120	Health Assessment	4
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	Practice in Professional Interventions during the Life Cycle	3
NURS	4914	Practice in Nursing Care to the Family and Community	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 Aguadilla, 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	3330	Human Resources Management	3
BADM	3490	Supervision	3
BADM	3700	Security and Hygiene in the Work Environmen	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 (AS)

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.

The Inter American University of PR, Ponce Campus, Occupational Therapy Assistant program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 4720 Montgomery Lane, Suite 200, Bethesda, MD 20814-3449. ACOTE's telephone number of AOTA is (301) 652-AOTA. ACOTE Website: www.acoteonline.org

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 Computing Technologies	3
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Contemporary Puerto Rico or	3
GEEC	2000	Entrepreneurial Culture	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 (AA and BA)

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.

Profile of the Competencies of Graduates

The Associate of Arts Program in Office Systems Administration is designed to develop the competencies that will permit students to:

Knowledge

Demonstrate knowledge and understanding of:

1. the tasks and responsibilities of an office administrator.
2. the diverse application programs to perform their profession.
3. the current legislation and regulations on the confidentiality of documents of the customers that the company serves.
4. the innovations and the changes in the profession and the technological advances that affect them.
5. the ethical and legal norms relevant to the social responsibility of a company and the individuals that integrate it.

Skills

1. Produce documents with the speed and accuracy that will permit them to perform effectively in different offices.
2. Develop strategies for the best operation of the office systems.
3. Be able to communicate in the oral and written form, in Spanish as well as in English, making use of diverse means that facilitate the achievement of the company's objectives.
4. Use diverse technological resources that will facilitate the processes of office systems management.

Attitudes

1. Recognize the importance of commitment and loyalty to the company by preserving ethical and legal principles.
2. Demonstrate courtesy, cooperation, assertiveness, discretion, confidentiality, responsibility, enthusiasm and respect for diversity, with the aim of offering a service of excellence.
3. Demonstrate a disposition to maintain effective interpersonal relations in and outside the company.

All campuses are authorized to offer this Program. In addition, the Barranquitas, Metropolitan and Ponce campuses are authorized to offer this Program through online learning.

REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN OFFICE SYSTEMS ADMINISTRATION

General Education Requirements	24 credits
Major Requirements	<u>35 credits</u>
Total	59

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GEMA	1000	Quantitative Reasoning	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEHS	2010	Historical Process of Contemporary Puerto Rico or	3
GEEC	2000	Entrepreneurial Culture	3

Major Requirements - 35 credits

OMSY	1101	Information Processing I	4
OMSY	1102	Information Processing II	4
OMSY	2000	Production of Business Documents	4
OMSY	2040	Electronic Spreadsheets	3
OMSY	2060	Administration of Documents and Databases	4
OMSY	2233	Information Processing in Offices of Legal Affairs	4
OMSY	2240	Information Processing in Offices of Health Services	3
OMSY	2250	Human Resources in the Organizational Environment	3
OMSY	3000	Health Services Billing	3
OMSY	3030	Business Communication in Spanish or	3
OMSY	3040	Business Communication in English	3
OMSY	3080	Office 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.

Profile of the Competencies of Graduates

The Bachelor of Arts Program in Office Systems Administration is designed to develop the competencies that will permit students to:

Knowledge

Demonstrate knowledge and understanding of:

1. the tasks and responsibilities of an office administrator.
2. the diverse application programs to perform their profession.
3. the current legislation and regulations on the confidentiality of documents of the customers that the company serves.
4. the innovations and the changes in the profession and the technological advances that affect them.
5. the ethical and legal norms relevant to the social responsibility of a company and the individuals that integrate it.
6. the different areas related to the administration of companies - accounting, marketing, economics, statistics, finances.
7. the managerial functions related to planning, organization, effective administration of time and human resources.
8. the effective techniques to explore self-employment.

Skills

1. Produce documents with the speed and accuracy that will permit them to perform effectively in different offices.
2. Apply the knowledge of managerial functions for problem solving and decision making that may occur in the company.
3. Develop strategies for the best operation of the office systems.
4. Be able to communicate in the oral and written form, in Spanish as well as in English, making use of diverse means that facilitate the achievement of the company's objectives.
5. Use diverse technological resources that will facilitate the processes of office systems management.
6. Plan, design and offer professional improvement activities in the company's areas of interest.

Attitudes

1. Recognize the importance of commitment and loyalty to the company by preserving ethical and legal principles.
2. Demonstrate courtesy, cooperation, assertiveness, discretion, confidentiality, responsibility, enthusiasm and respect for diversity, with the aim of offering a service of excellence.
3. Demonstrate a disposition to maintain effective interpersonal relations in and outside the company.
4. Demonstrate social responsibility in the performance of the tasks inherent to the profession.
5. Evaluate self-employment as a viable alternative in your professional life.
6. Show a commitment to learning and professional growth.

All campuses are authorized to offer this Program.

This Program, in the Bayamón Campus, is accredited by the *Accreditation Council for Business Schools and Programs (ACBSP)* (<https://www.acbsp.org/>).

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN OFFICE SYSTEMS ADMINISTRATION

General Education Requirements	48 credits
Major Requirements	62 credits
Related Requirements	7 credits
Elective Courses	<u>3 credits</u>
Total	120

General Education Requirements - 48 credits

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

Major Requirements - 62 credits

OMSY	1010	Speed Writing in Spanish	3
OMSY	1101	Information Processing I	4
OMSY	1102	Information Processing II	4
OMSY	2000	Production of Business Documents	4
OMSY	2040	Electronic Spreadsheets	3
OMSY	2060	Administration of Documents and Databases	4
OMSY	2233	Information Processing in Offices of Legal Affairs	4
OMSY	2240	Information Processing in Offices of Health Services	3
OMSY	2250	Human Resources in the Organizational Environment	3
OMSY	3000	Health Services Billing	3
OMSY	3030	Business Communication in Spanish	3
		or	
OMSY	3040	Business Communication in English	3
OMSY	3080	Office 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	4920	Design and Administration of Trainings	3
OMSY	4970	Integration Seminar	3

Related Requirements - 7 credits

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3

Minor in Office 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.

Requirements for the Minor in Office Administration - 18 or 19 credits

OMSY	1101	Information Processing I	4
OMSY	1102	Information Processing II	4
OMSY	2040	Electronic Spreadsheets	3
OMSY	2060	Administration of Documents and Databases	4
OMSY	2233	Information Processing in Offices of Legal Affairs	4
		or	
OMSY	2240	Information Processing in Offices of Health Services	3

Minor in Administration of Electronic Medical Records

The Minor in Administration of Electronic Medical Records is a complementary academic offering for the bachelors' programs offered in the Metropolitan Campus. This program aims to develop in the students the knowledge and the skills necessary to perform the tasks required in the field of the billing of health services and electronic medical records in medical offices, hospitals and related areas. In addition, with the acquired knowledge, students will be able to create their own business to offer these services.

Requirements for the Minor in Administration of Electronic Medical Records - 18-19 credits

OMSY	1000	Keyboard Skills	3
		or	
OMSY	1101	Information Processing I	4
OMSY	2400	Medical Terminology	3
OMSY	2500	Legal and Ethical Aspects in Medical Information	3
OMSY	3000	Health Services Billing	3
OMSY	3430	Electronic Codification of Diagnoses and Procedures	3
OMSY	3440	Administration of the Electronic Medical Record	3

The Metropolitan Campus is authorized to offer this minor.

Operations Management (BBA)

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.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

To demonstrate knowledge and understanding of:

1. the principles of management of operations in a globalized, ethical and ecological environment.
2. the importance of the management of operations to maintain to innovation and competitiveness of organizations of production and services.

Skills

1. To apply the concepts of management of operations in the productive administration of organizations of production and services.
2. To use sciences of production and operations in its administration as tools to foment enterprising thought.

Attitudes

1. To value the ethical aspects in the management of production and services.
2. To appreciate the labor diversity as a critical element in the area of production and operations.

The Bayamón, Metropolitan and Ponce Campus are authorized to offer this Program. The Ponce Campus is also authorized to offer this Program through online learning.

This Program, in the Bayamón Campus, is accredited by the *Accreditation Council for Business Schools and Programs (ACBSP)* (<https://www.acbsp.org/>).

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	<u>6 credits</u>
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	2101	Corporate Finance I	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	Business Communication in Spanish or	
OMSY	3040	Business Communication 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	Fundamentals 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).

Minor in Operations Management

This concentration responds to the need to provide students with more theoretical and practical knowledge about the theories related to the creation and administration of products and services. They would obtain knowledge in the area of manufacturing and service. **haemostasis**The minor is aimed at students of the baccalaureate degree programs in Business Administration (BBA).

Requirements for the Minor in Operations Management– 18 credits

BADM	3250	Transportation Management	3
BADM	3340	Management Policies and Strategies	3
BADM	3700	Security and Hygiene in the Work Environment	3
BADM	3820	Managerial Science	3
BADM	4800	Operations Management	3
BADM	4820	Buying and Materials Management	3

The Bayamon, Metropolitan and Ponce campuses are authorized to offer this minor.

Optical Science Technology (AAS)

The Associate Degree Program in Applied Sciences in Optical Sciences offers a university preparation that produces the development of the technical skills and the competences of the profession; it offers, in addition, a scientific base and the most recent knowledge in the professional field.

The courses aim to prepare the student for carrying out the functions and operations required in the optician profession. They aim to enable the student to perform in the optics market.

In order to obtain the permanent license in Puerto Rico, the graduate must pass the Board's examination offered by the Examining Board of Optician.

In practice the profession in another jurisdiction, it will be governed by that jurisdiction.

Students must be available to do the laboratories and practices in the centers authorized by the University

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. Have a minimum high school grade point index of 2.50. In the case of transfer or intra transfer, the institutional norm will be followed.

Graduation Requirements

For graduation this program will require the approval of all courses of the major with a minimum grade of C.

The Ponce Campus is authorized to offer this Program through classroom learning.

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN APPLIED SCIENCE IN OPTICAL SCIENCE TECHNOLOGY

General Education Requirements	24 credits
Major Requirements	<u>41 credits</u>
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

OPST	1003	Fundamentals of Optics	2
OPST	1010	Principles of Biology	3
OPST	1011	Ophthalmic Materials I	3
OPST	1012	Ophthalmic Materials II	3
OPST	1020	Anatomy and Physiology of the Eye	3
OPST	1111	Fudamentals of Physics I	3
OPST	1112	Fudamentals of Physics II	3
OPST	2000	Legal and Ethical Considerations	2
OPST	2004	Contact Lenses I	2
OPST	2005	Contact Lenses II	3
OPST	2010	Prescription Dispatch	3
OPST	2020	Subnormal Vision	3
OPST	2021	Entrepreneurial Development	2
OPST	2103	Ophthalmic Materials III	2
BIOL	2913	Supervised Practice	4

Pharmacy Technician (AAS)

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 index 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 and the University Center of Caguas of the Metropolitan Campus are authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN PHARMACY TECHNICIAN

General Education Requirements		24 credits
Major Requirements		<u>50 credits</u>
	Total	<u>74</u>

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 1271	Applied Pharmacology I	3
PHAR 1280	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	2190	Integration of Pharmacy Concepts	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.

Profile of the Competencies of Graduates:

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Demonstrate knowledge of the foundations of professional photography work.
2. Demonstrate knowledge of the equipment and the computer programs used in the field of photography.

Skills

1. Use English as well as Spanish correctly in oral and written expression.
2. Use the inherent vocabulary to the discipline of photography correctly.
3. Integrate and apply the principles and foundations of both theory and practice in the field of photography in real situations in the world of work.
4. Install and operate equipment related to the field of photography.
5. Operate specialized computer programs used in the field of photography.

Attitudes

1. Make responsible decisions taking into consideration the ethical and moral aspects of the profession.
2. Recognize the necessity to stay updated in the technological advances in the field of photography.

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		<u>29 credits</u>
	Total	56

General Education Requirements - 27 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Contemporary Puerto Rico	3
		or	
GEEC	2000	Entrepreneurial Culture	3
GEPE	3010	Art Appreciation	3

Major Requirements - 29 credits

COMU	1025	Introduction to Graphic Production	3
COMU	1031	Photographic Techniques I	3
COMU	1032	Photographic Techniques II	3
COMU	1045	Graphic Production for Publications	3
COMU	2610	Illumination in Photography	3
COMU	2621	Digital Photographic Manipulation	3
COMU	2622	Advanced Photography	3
COMU	2920	Photographic Portfolio	3
COMU	2971	Seminar on New Trends in Photography	2
ENTR	2200	Fundamentals of Entrepreneurship	3

Physical Therapist Assistant (AS)

The Physical Therapist Assistant Program aims to develop competent paraprofessionals so they may offer high quality services 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 physical therapist assistants 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 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 current 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.

The Program is accredited by the *Commission on Accreditation in Physical Therapy Education (CAPTE)* (<http://www.capteonline.org/home.aspx>).

REQUIREMENTS OF THE ASSOCIATE OF SCIENCE DEGREE IN PHYSICAL THERAPIST ASSISTANT

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
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEHS	2010	Historical Process of Contemporary Puerto Rico	3
	or		
GEEC	2000	Entrepreneurial Culture	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

Police Science (AA)

The Associate of Arts degree in Police Science is designed to develop the conceptual, technical and affective competencies in students, which are necessary for them to perform effectively as an officer of the law in the state and municipal environments. Upon finishing their study program it is expected that the graduates will have an academic formation that will enable them to work as qualified professionals in their field. In addition, graduates will be given a profile of general and specialized competencies, which will enable them to occupy positions in the Police Force of Puerto Rico as well as in the Municipal Police. However, the graduates must meet the requirements in effect at the moment of requesting admission to the Police Department of Puerto Rico or the appropriate Municipal Police.

Goals of the Program

The Associate of Arts Program in Police Science will promote the development of professionals with the knowledge, skills and attitudes necessary to perform effectively in the different components of the municipal or state police forces. The Associate of Arts Program in Police Science also aims to achieve the following specific goals as part of the integral formation of graduates:

1. Develop professionals focused on the mastery of knowledge framed in the new trends of the police science program.
2. Promote the understanding of the problems of criminality and delinquency from their causes and effects on society.
3. Promote research and the use of technology as ways to generate the production and construction of knowledge that may result in the improvement of the practices of prevention and intervention that are carried out in the area of police science.
4. Develop a critical and understanding attitude towards the social problems that affect a healthy coexistence in society.
5. Develop a commitment to the ethical-legal dimension of the professions related to the social function of law enforcement agents.

Objectives of the Program

The Associate of Arts Program in Police Science aims to develop the following general objectives.

1. Generate the theoretical and legal knowledge related to the area of police science and adjusted to the changes and the new trends of the profession.
2. Analyze the problems of criminality from their causes and social effects.
3. Use research and the technological advances for the production and construction of knowledge in the areas included in the police science field.
4. Apply the knowledge and skills of the discipline in solving problem and in decision making related to the police science areas.
5. Integrate to the professional practice the ethical-legal values and principles related to the field of police science.

Profile of Competencies of Graduates

This Program is designed to develop the competencies of knowledge, skills and attitudes that will permit students to:

Knowledge

1. Know the legal theories and principles that serve as a base for the profession, as well as the structure and operation of police science.
2. Know the human and civil rights, and their legal and social implications in the context of police science.

Skills

1. Analyze the legal and social aspects of the justice systems for minors and adults.
2. Apply the scientific methodology and the technological resources available in the area of police science.
3. Apply rules, procedures, methods and strategies in problem solving in scenarios related to the area of police science.

Attitudes

1. Apply the ethical-legal values to the field of police science.

Graduation Requirements

1. Have a minimum general average of 2.50.
2. Approve with a minimum grade of C the following courses of the General Education Program:
 - a. GESP 1101 and 1102
 - b. GEEN 1101 and 1102 or 1201 and 1202 or 2311 and 2312
 - c. GEMA 1000
3. Approve with a minimum grade of C all the courses that make up the Major Requirements.

The Aguadilla, Arecibo, Barranquitas, Bayamón, Fajardo, Guayama, Metropolitan, including its University Center in Caguas, Ponce and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN POLICE SCIENCE

General Education Requirements		21 credits
Major Requirements		<u>39 credits</u>
	Total	60

General Education Requirements - 21 credits

GESP		Spanish	6
GEEN		English	6
GEIC	1010	Information and Computing Technologies	3
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Contemporary Puerto Rico	3
		or	
GEEC	2000	Entrepreneurial Culture	3

Major Requirements - 39 credits

CJUS	1010	Police and Community	3
CJUS	2010	Criminal Procedures in Justice Systems	3
CJUS	2050	Victims of Crime	3
CJUS	2070	Human and Civil Rights	3
CJUS	2075	Social Deviation	3
CJUS	2095	Ethics in Processes of Prevention and Police Intervention	3
CJUS	3025	Criminal Law	3
CJUS	3030	Interviews and Interrogations	3
CJUS	3035	Special Criminal Laws	3
CJUS	3250	Criminal Investigation	3
CJUS	4040	Evidence Management	3
PSYC	1051	General Psychology I	3
SOCI	2080	Criminal Justice System	3

Political Science (BA)

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 and in law, consulting, lobbying, communication media, advertisement agencies, and others. In Addition, the Program offers two minors: International Relations and Governmental Management.

Profile of the Competencies of Graduates

The program is designed to develop the competencies that will allow students to:

Knowledge

1. Know the theoretical and social bases for the best understanding the political world.
2. Know the principles, the foundations and the processes in the development of political activity.
3. Know the main theories on international relations, political economy, and comparative politics and how these affect our social reality.
4. Know the theoretical principles of political research.
5. Know the use of new technology as a research tool and for the search of information in political science.

Skills

1. Apply their knowledge in different professional areas, such as law, education, media, public service and private enterprise.
2. Perform critical analyses of the political theories that help to understand the present political world.
3. Use the methods and processes of quantitative and qualitative research and their applications.
4. Critique and apply different methodological approaches in the political analysis process.
5. Use and integrate the new technology of the computer programs in political research and analysis.

Attitudes

1. Have a clear vision of the role of the social scientist in contemporary society.
2. Appreciate the political development of the human being and his society throughout the centuries.
3. Develop and evaluate lines of reasoning.

The Metropolitan and San German campuses are authorized to offer this Program and the minors.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN POLITICAL SCIENCE

General Education Requirements	48 credits
Major Requirements	51 credits
Prescribed Distributive Requirements	15 credits
Elective Courses	<u>6 credits</u>
Total	120

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

POLS	1011	Introduction to Political Science	3
POLS	2040	Government of the United States	3
POLS	2088	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	3610	Relations between the United States and Puerto Rico	3
POLS	3820	Governmental Management	3
POLS	3910	Electoral Processes	3
POLS	4300	Public Policy and Laws	3
POLS	4900	Seminar on Political Research	3

Six additional credits from the course of POLS at the 3000 or 4000 level 6

Prescribed Distributive Requirements - 15 credits

Fifteen (15) credits from the following two groups of courses:

Empirical Applications

EVSC	1110	Introduction to Environmental Sciences	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	3243	International Economics	3
PSYC	3001	Statistical Methods I	3
SOCI	3645	Studies of Populations	3

Government, Regulations and Laws

BADM	3313	Mercantile Law	3
EVSC	2210	Environmental Policies, Laws and Regulations	3
POLS	3050	Ethics, Religion and Politics	3
POLS	3170	International Conflicts	3
POLS	3200	Political Sociology	3
POLS	3700	Women and Their Political Development	3
POLS	3800	Government, Ecology and Public Environmental Policy	3
POLS	4110	Constitutional Law	3
SOCI	2080	Criminal Justice System	3

Minor in Governmental Management

The Metropolitan and San German campuses are authorized to offer this minor.

Requirements for the Minor in Governmental Management - 18 credits

Select 18 credits from the following:

MAEC	2212	Principles of Economics (Macro)	3
MAEC	3236	Public Finance and Fiscal Policy	3
MAEC	3330	Economic Development of Puerto Rico	3
POLS	1011	Introduction to Political Science	3
POLS	2040	Government of the United States	3
POLS	2088	Government of the Commonwealth of Puerto Rico	3
POLS	3050	Ethics, Religion and Politics	3
POLS	3200	Political Sociology	3
POLS	3300	Human Rights	3
POLS	3820	Governmental Management	3
POLS	4110	Constitutional Law	3
POLS	4300	Public Policy and Laws	3
PUAD	3300	Government Accounting	3
PUAD	3510	Public Budget Planning	3

Minor in Human and Civil Rights

The Minor in Human and Civil Rights is designed to provide the basic knowledge in different aspects of Public and Penal Rights for students interested in legal affairs.

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

Requirements of the Minor in Human and Civil Rights – 18 credits

Select 18 credits from the following courses:

CJUS	2070	Human and Civil Rights	3
CJUS	3025	Criminal Law	3
CJUS	3045	Rights of the Correctional Population	3
POLS	3300	Human Rights	3
POLS	4110	Constitutional Law	3
POLS	4300	Public Policy and Laws	3
SOCI	2080	Criminal Justice System	3

Minor in International Relations

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

Requirements for the Minor in International Relations - 18 credits

Select 18 credits from the following:

GEHS	3020	Global Society	3
MAEC	3243	International Economics	3
MKTG	4244	Global Marketing	3
POLS	1011	Introduction to Political Science	3

POLS	3080	Political Economics	3
POLS	3150	Introduction to International Relations	3
POLS	3170	International Conflicts	3
POLS	3190	United States Foreign Policy	3
POLS	3501	Political Systems of Latin America	3
POLS	3503	Caribbean Political Systems	3
POLS	3504	Middle East Politics	3
POLS	4033	Inter-American Relations	3
POLS	4100	Contemporary World Politics	3

Minor in Legal Affairs

The Minor in Legal Affairs is designed to provide the basic knowledge in different aspects of the Public and Penal Rights for students interested in legal affairs.

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

Requirements of the Minor in Legal Affairs - 18 credits

Select 18 credits from the following courses:

BADM	3313	Mercantile Law	3
CJUS	2070	Human and Civil Rights	3
CJUS	3025	Criminal Law	3
CJUS	3045	Rights of the Correctional Population	3
CJUS	3055	Federal Jurisdiction	3
HPER	3040	Legal Foundations in Sports	3
MUBA	1400	Legal Aspects in the Music Business	3
POLS	3300	Human Rights	3
POLS	4110	Constitutional Law	3
POLS	4300	Public Policy and Laws	3
REAL	2600	Legal Principles of Real Estate	3
SOCI	2080	Criminal Justice System	3

Minor in Political Science

The Minor in Political Sciences is designed to provide the basic knowledge in different subjects of political science for those students of other majors that are not of this Bachelor's Degree.

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

Requirements of the Minor in Political Science - 18 credits

This minor is for students of other majors that are not in Political Sciences. The students who wishes a Minor in Political Sciences must take 18 credits from the following courses:

POLS	1011	Introduction to Political Science	3
POLS	2040	Government of the United States	3
POLS	2088	Government of the Commonwealth of Puerto Rico	3
POLS	2100	Political Analysis and Research Techniques	3
POLS	3050	Ethics, Religion and Politics	3
POLS	3080	Political Economy	3
POLS	3100	Comparative Government and Politics	3
POLS	3150	Introduction to International Relations	3

POLS	3170	International Conflicts	3
POLS	3190	United States Foreign Policy	3
POLS	3200	Political Sociology	3
POLS	3300	Human Rights	3
POLS	3401	Classic Political Thought	3
POLS	3402	Modern Political Thought	3
POLS	3501	Political Systems of Latin America	3
POLS	3502	Contemporary Political Problems in Latin America	3
POLS	3503	Caribbean Political Systems	3
POLS	3504	Middle East Politics	3
POLS	3610	Relations between the United States and Puerto Rico	3
POLS	3700	Women and Their Political Development	3
POLS	3800	Government, Ecology and Environmental Public Policy	3
POLS	3820	Governmental Management	3
POLS	3910	Electoral Processes	3
POLS	4033	Inter-American Relations	3
POLS	4055	Public Opinion and Propaganda	3
POLS	4100	Contemporary World Politics	3
POLS	4110	Constitutional Law	3
POLS	4300	Public Policy and Laws	3
POLS	4540	Latin American Political Thought	3
POLS	4620	Government and Politics in Developing Areas (To, B, C, D, F, I)	3

Popular Music (A and BA)

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 not 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	Theory and Sight Singing I and II (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 Degree in Popular Music the student must meet the following progress requirements:

1. Have a minimum grade of C in the major courses.

2. A minimum grade of B is required in the courses that are evaluated by a jury (Theory and Sight Singing, Main Instrument, and Graduation Concert).

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.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

To demonstrate knowledge and understanding of:

1. the role of music in the context of the national culture and know the relation of our music with the musical manifestations of the world.
2. the theory of music is related to the performance of a musical instrument.
3. the different sources of contemporary pop music in Puerto Rico.

Skills

1. To play the main instrument at an intermediate level, putting emphasis in the styles and the forms of pop music.
2. To compose, arrange and copy music with simple forms using specialized software to write and record music.
3. To improvise on simple forms by means of the application of formulas and elementary strategies for spontaneous creation.

Attitudes

1. To recognize the value of music in its context and appreciate the musical genre of different countries as well as the native ones.
2. To appreciate the contribution of pop music to the culture of a country.
3. To value the importance of the integration of team work to the individual effort for the attainment of the goals.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE ASSOCIATE DEGREE IN POPULAR MUSIC

General Education Requirements		24 credits
Major Requirements		<u>53 credits</u>
	Total	<u>77</u>

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEMA	1000	Quantitative Reasoning	3
GEHS	2010	Historical Process of Contemporary Puerto Rico or	3
GEEC	2000	Entrepreneurial Culture	3

Major Requirements - 53 credits

MUSI	1122, 1123, 1124	Comparative History of Music I, II, III	9
MUSI	1323, 2324, or	Instrumental Ensemble I, II,	
MUSI	1333, 1334	Choral Ensemble I, II	4
MUSI	1531, 1532	Theory and Sight Singing I, II	6
MUSI	1563, 1564 or	Group Piano I, II	
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	Theory and Sight Singing I and II (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

Academic Progress Requirements

In order to remain as a student of the Bachelor of Arts in Popular Music program the student must meet the following progress requirements:

1. Have a minimum grade of C in the major courses.
2. A minimum grade of B is required in the courses that are evaluated by a jury (Theory and Sight Singing, Main Instrument, and Graduation Concert).

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.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

To demonstrate knowledge and understanding of:

1. the role of music in the context of the national culture and the bond between Puerto Rican music with music of the world.
2. the theory of music and how this is related to the different areas of musical works.
3. the different kinds of contemporary pop music in Puerto Rico.

Skills

1. To perform on the main instrument at an advanced level, in different contexts, making emphasis in the styles and forms of the pop music.
2. To use a suitable software to compose, arrange, record, copy or to write music professionally.
3. To create music in a spontaneous way on complex forms, by means of the application of concepts, strategies and resources for musical improvisation.

Attitudes

1. To evaluate music in its Puerto Rican and international context.
2. To appreciate the contribution of pop music to the culture of a country.
3. To value the importance of the integration of team work to the individual effort for the attainment of the goals.

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	<u>3 credits</u>
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 Contemporary Dance Music

The main purpose of the minor in contemporary dance is to properly prepare students in the technical, historical and methodological aspects of the field of dancing. This preparation is attained with courses of artistic creation and production. The fundamental aim is to train self promoting students with a holistic preparation who can implement artistic proposals and contribute to the sociocultural development of the country.

The Metropolitan Campus is authorized to offer this minor.

Requirements for the Minor in Contemporary Dance - 21 credits

DANC	2000	Corporal Awareness and Anatomy	3
DANC	2010	Principles and Techniques of Contemporary Dance	3
DANC	2230	History of Contemporary Dance	3
DANC	2240	Dynamics of the Body in the Caribbean Dance	3
DANC	3020	Contemporary Dance Teaching Strategies	3
DANC	3250	Choreographic Principles	3
DANC	3360	Production of the Arts	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	Theory and Sight Reading I	3
MUSI	0532	Theory and Sight 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.

Minor in Performing Arts

The minor in Performing Arts is a complementary academic offering of the Division of Humanistic Studies. The program enriches the theatrical experience that students acquire in the Theater Workshop. It develops research, reflective and interpretative skills. It applies the knowledge acquired in dealing with the dramatic languages and foments the appreciation of the theater as one of the Fine Arts.

Admission Requirements

In order to declare this minor, it is necessary to have approved an audition to enter the Theater Workshop.

The Metropolitan Campus is authorized to offer this minor.

Requirements for the Minor in Performing Arts - 18 credits

Students must select 18 credits from the following courses.

THEA	1001	Theater Workshop	2
THEA	1002	Theater Workshop	2
THEA	2001	Theater Workshop	2
THEA	2002	Theater Workshop	2
THEA	3001	Theater Workshop	2
THEA	3002	Theater Workshop	2
THEA	4001	Theater Workshop	2
THEA	4002	Theater Workshop	2
THEA	1500	Acting	3
THEA	1700	Appreciation of the Theater	3
THEA	2500	Puppet Theater	3
THEA	3505	Puerto Rican Theater	3
THEA	4013	Stage Direction and Theatrical Staging	3
THEA	4500	Stagecraft	3

Psychology (BA)

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 study of psychology. The curriculum has a particular emphasis on developing the student's capacity for critical judgment and for professional edthical values. In addition, it emphasizes the acquisition of scientific research skills, cultural diversity and dealing with relationships at the intrapersonal and interpersonal levels.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

Knowledge and understanding of:

1. The main theories and currents of psychological thought, the historical background as a science and contemporary trends.
2. The principle methods of research used in behavioral sciences.
3. The main ethical aspects that govern psychology as a profession.
4. The biological bases that form part of human behavior.
5. The sociocultural factors that affect psychological behavior.
6. The applicability of the realities and the mental health services in the field of psychology in Puerto Rico and the contemporary trends.

Skills

1. Assume positions and offer their analytical and critical judgment.
2. Apply and integrate the theory and basic practice skills required at the bachelor's level.
3. Apply the principles of scientific research in psychology.
4. Communicate with effectiveness in both oral and written form.

Attitudes

1. Incorporate in their professional life the respect and esteem for human diversity.
2. Apply the ethical principles of the discipline in the exercise of their profession.
3. Establish interpersonal relations that foment collaborative work in their work environment.
4. Demonstrate commitment with the discipline by means of participation in activities related to this, such as symposiums, congresses, workshops and by belonging to organizations that represent them.

The Aguadilla, Arecibo, Fajardo, Metropolitan and San Germán campuses are authorized to offer this Program. The Metropolitan Campus' University Center in Caguas is also authorized to offer this Program. In addition, the Ponce Campus and the Metropolitan Campus' University Center in Caguas are authorized to offer this Program through online learning.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN PSYCHOLOGY

General Education Requirements	48 credits
Major Requirements	57 credits
Prescribed Distributive Requirements	9-10 credits
Elective Courses	6 credits
Total	<u>120-121</u>

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

PSYC	1051	General Psychology I	3
PSYC	1052	General Psychology II	3
PSYC	2001	Writing in Psychology	3
PSYC	2010	Developmental Psychology	4
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 Psychological Interviews	3
PSYC	4103	Community Psychology	3
PSYC	4200	Principles of Psychological Testing	3
PSYC	4213	Psychopathology	3
PSYC	4234	Psychology of Personality	3
PSYC	4600	Experimental Psychology	4
PSYC	4971	Integration Seminar	3
ANTH	2030	Social Anthropology	3
BIOL	1006	Fundamentals of Biology	4

Prescribed Distributive Requirements – 9-10 credits

Select nine or ten credits from the following courses.

PSYC	3144	Motivation and Emotion	3
PSYC	3268	Introduction to the Counseling and Psychotherapy	3
PSYC	3313	Introduction to Industrial-Organizational Psychology	3
PSYC	3315	Introduction to School Psychology	3
PSYC	397_	Special Topics	3
PSYC	4100	Behavior Modification	3
PSYC	4113	Contemporary Theories	3
PSYC	4210	Cognitive Psychology	3
PSYC	4300	Group Processes	3
PSYC	4520	Crisis Intervention	3
PSYC	4910	Experiences in Psychology Scenarios	3
CJUS	4500	Social-Scientific Research Methodology	4

Minor in Intervention and Stabilization of Clients in Crisis Situations

The Minor in Intervention and Stabilization of Clients in Crisis Situations 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 Crisis Situations - 24 credits

PSYC	1051	General Psychology I	3
PSYC	3144	Motivation and Emotion	3
PSYC	3220	Developmental Psychology	3
PSYC	4000	Foundations of Psychological Interview	3
PSYC	4520	Crisis Intervention	3
HUSE	3010	Intra-family Violence	3
HUSE	3220	Family Conflicts Intervention	3
HUSE	4010	Ethical, Professional and Legal Aspects in Psychosocial Services	3

Radiological Science (BS)

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

1. Submit evidence of having completed the graduation requirements for the Associate Degree in Radiological Technology in a properly certified institution.
2. Have a minimum average of 2.50
3. Meet the established norms of admission in the General Catalog of Inter American University of Puerto Rico.
4. Present an effective copy of the following documents:
 - Certificate of Health
 - Certificate of Immunization against Hepatitis B and Chickenpox
 - Negative Certificate of Criminal Records submitted by the Police of Puerto Rico (not more than six months old)
 - Certificate of Cardiovascular Resuscitation (CPR)
 - Evidence of a HIPPA course
5. In addition to the indicated admission requirements, the candidates who come from other institutions will be evaluated in relation to the curricular program of origin to determine the courses they must take.

Retention Requirements

1. Meet the satisfactory academic progress norms established in the General Catalog of Inter American University.
2. Pass all major courses with minimum grade of C. The courses of clinical practice must be approved with a minimum grade of B.
3. Students who attempt and fail the same major course in two occasions will be put under a probationary period in the Bachelor's program of X-ray Sciences with a major in Computerized Tomography and Magnetic Resonance. If the student fails during the probationary period in the same course, he will be dropped from the program, but he may choose to request admission to another major.
4. Once the student is assigned to a clinical center, he must attend this as programmed by the professor and the coordinator of the Program.

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 clinical practice courses must be approved with a minimum grade of B.
3. To obtain the Bachelor's degree in Radiological Sciences with a major in Computerized Tomography and Magnetic Resonance, the student must complete the degree with a minimum general academic index of 2.50.

The Aguadilla, Barranquitas, Ponce and San Germán campuses are authorized to offer this Program.

REQUIREMENTS FOR THE 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	<u>30 credits</u>
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 Asthetic Thought category, course GEPE 4040 and a course from among 3010, 3020 and 3030; 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 2030; in the Historical and Social Context category a course from among GEHS 3020, 3050, 4020 and 4030.

Major Requirements - 30 credits

CTMR	3020	Physics of Computerized Tomography	3
CTMR	3025	Physics of Magnetic Resonance	3
CTMR	3000	Introduction to Computerized Tomography and Magnetic Resonance	2
CTMR	3010	Sectional Anatomy and Pathophysiology	4
CTMR	3050	Procedures and Pathology in the Images of Computerized Tomography	4
CTMR	3060	Procedures and Pathology in the Images of Magnetic Resonance	4
CTMR	4910	Practice in Computerized Tomography	4
CTMR	4920	Practice in Magnetic Resonance	4
CTMR	4030	Integration Seminar	2

Minor in Science in Muscular Skeletal Sonography

Requirements of the Minor in Science in Muscular Skeletal Sonography - 18 credits

This minor requires that students be admitted to the Bachelor of Science in Radiological Sciences with a major in Computerized Tomography and Magnetic Resonance of the Ponce Campus. The Ponce Campus is authorized to offer this Minor.

SONO	3005	Anatomy and Pathophysiology MSK	3
SONO	3010	Physics and Instrumentation of Ultrasound	3
SONO	3011	Sonography MSK in the Upper Extremities	3
SONO	3012	Sonography MSK in the Lower Extremities	3
CTMR	4010	Computerized Tomography MSK	3
CTMR	4011	Magnetic Resonance MSK	3

Radiological Technology (AAS, BS)

Radiological Technology (AAS)

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 Applied 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
- Up-to-date evidence of CPR.
 - It must be presented prior to the beginning of the second semester of the first year of the program.
 - This evidence must have a 6 months effective period at the beginning of every semester. This applies, also, to the students who already have the evidence of CPR.
- The student is responsible for complying with any other requirement of the agency. These are: Law HIPAA, negative doping test, influenza vaccination or AH1N1, and the exhaled particles test, among others.
- Meet the essential, nonacademic requirements, related to the skills compatible to the profession, as stipulated in the current Program Manual.

Satisfactory Academic Progress Requirements

1. Meet the academic progress norms established in Inter American University's General Catalog.
2. Approve all General Education Program courses and major courses with a minimum grade of C. Major courses RATE 2911, 2912, 2913, 2917 and 2918 must be approved with a minimum grade of B.
3. All students who do not satisfactorily approve the same major course after two attempts will be placed on a probationary period in the Radiological Technology Associate Degree Program. If a student fails the same course during the probationary period, he will be dropped from the Program.
4. The student will attend the clinical affiliation as programmed by the Program Office.
5. The student who is suspended for academic deficiency and/or punishable conduct may not be re-admitted to the Program.
6. To remain in the program, the student must maintain a minimum average of 2.25

Three (3) or more days of absence during the semester in a course of clinical practice, without a reasonable justification, will result in the student being dropped from the course.

Internal and External 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.
3. Students, who fail, obtain UW in major courses or withdraw from the Program before completing the degree, have a maximum of two academic semesters to register in the current study program,

in harmony with its capacity to receive more students. Those students, who do not take major courses during this period, must apply again for admission to the Program.

4. Direct internal or external transfers to courses RATE are not permitted. For this, an application for space or admission to the program must be made. Major courses will not be authorized in combined registration.

Graduation Requirements

1. Meet all the graduation norms and requirements for the Associate in Applied Science Degree established in the General Catalog.
2. To obtain the Associate of Applied Sciences Degree in Radiological Technology, the student must complete the degree with a minimum academic grade point index of 2.25 and the major with a minimum academic grade point index of 2.40.

The Aguadilla, Barranquitas, Fajardo, Ponce, and San Germán, campuses are authorized to offer this Program.

The Program of the Ponce and San Germán campuses is accredited by the national accrediting board, Joint Review Committee on Education in Radiologic Technology (JRCERT).

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN RADIOLOGICAL TECHNOLOGY

General Education Requirements	24 credits
Major Requirements	57 credits
Related Course Requirements	<u>3 credits</u>
Total	84

General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computing Technologies	3
GEMA 1200	Fundamentals of Algebra	3
GEHS 2010	Historical Process of Contemporary Puerto Rico or	3
GEEC 2000	Entrepreneurial Culture	3

Major Requirements - 57 credits

RATE 1100	Radiologic Protection	1
RATE 1101	Biology and Radiographic Anatomy I	4
RATE 1102	Biology and Radiographic Anatomy II	4
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 Exposure 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

Related Course Requirements - 3 credits

GEHS	3050	Human Formation, Society and Culture	3
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Radiological Technology in Mammography and Angiography (BS)

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.

Profile of the Competencies of Graduates

The Program is designed to develop the competencies that will permit students to:

Knowledge

Demonstrate knowledge and understanding of:

1. the basic aspects of legislation, duties, responsibilities, professional ethics, historical evolution and radiological safety.
2. basic concepts of biology, histology, anatomy and physiology of the main systems of the human body.
3. procedures, the radiographic techniques, the indications and the contraindications of radiographic studies by means of the use of contrasting agents.
4. the essential components of the production of X-rays and the use of the different radiographic equipment.
5. the basic concepts of pharmacology and the administration of contrast agents and intravenous medicines.
6. the basic principles of physics applicable to the science of radiation.
7. the basic concepts of pathological conditions and the corresponding terminology.
8. the biological effects, the description of the action mechanism and the short and long term effects of ionizing radiation.
9. the new modalities of diagnosis by means of the different forms of images produced by the different equipment, such as in mammography and angiography.
10. the regulations of the Mammography Quality Standards Act (MQSA) for the interpretation of the norm that is to be used for quality control of the image and its procedures.

Skills:

1. Prepare the patient's file by means of the use of the appropriate medical terminology.
2. Apply the radiological procedures in harmony with the established standards of practice for each specialization.
3. Perform the developing of radiographic films in an effectively and safe manner.
4. Identify the methods of radiological safety located in the radiographic room.
5. Determine the suitable radiographic reviewer for each procedure.
6. Manipulate the contrast means used in the specialized studies as the law establishes.
7. Use the skills of effective communication with patients, relatives, colleagues and other members of the interdisciplinary health team.
8. Demonstrate skills to obtain data for research by using technology.

Attitudes

1. Demonstrate commitment with their professional development through your participation in activities of continuing education and professional organizations.
2. Demonstrate compassion towards the patient.
3. Demonstrate a professional and ethical conduct.
4. Recognize the importance of offering care to the patient of the highest quality when carrying out the procedures of mammography and angiography.

The Aguadilla, Fajardo, 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	<u>3 credits</u>
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 Exposure 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

Real Estate (BBA)

The Bachelor of Business Administration (BBA) in Real Estate aspires to promote a theoretical and practical preparation in the areas related to real estate. The Program aims to develop the following competencies: to know the inherent functions the Real Estate field as well as the technical tasks related the real estate industry, such as: transactions, rent and other rights, and the administration of real estate, etc. The program also aims to make students aware of the ethical principles that should prevail in this labor setting. The graduates of this program that aspire to obtain the license of seller and broker must comply with the requirements established by the Real Estate Brokers and Agents Board.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

To demonstrate knowledge and understanding of:

1. the operation of the real estate market in Puerto Rico.
2. the impact of the legal and approved frame in Real Estate matters.
3. the role that the entrepreneur of Real Estate performs.
4. the basic theories of the current methods of appraisal and the nature of the assessment of properties.
5. the basic principles of urban economy in the Real Estate market.

Skills

1. To contrast the financial values and investments in Real Estate properties.

Attitudes

1. To assume the ethical behavior that should govern all Real Estate businesses.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN REAL ESTATE

General Education Requirements	48 credits
Core Course Requirements	35 credits
Major Requirements	32 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>3 credits</u>
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 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	2101	Corporate Finance I	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	Business Communication in Spanish or	
OMSY	3040	Business Communication in English	3

Major Requirements - 32 credits

BADM	3900	Business Information Systems	3
FINA	3500	Introduction to Real Estate	3
MKTG	3230	Integrated Marketing Communication	3
MKTG	3234	Personal Sales	3
REAL	2500	Real Estate Economics	3
REAL	2600	Legal Principles of Real Estate	3
REAL	2700	Obligations and Contracts in Real Estate	3
REAL	3800	Real Estate Funding	3
REAL	3900	Administrative Principles in Real Estate	3
REAL	4000	Introduction to the Appraisal of Real Estate	3
REAL	4100	Ethics in the Real Estate Business	2

Prescribed Distributive Requirements - 6 credits

Select six (6) credits from the following courses:

BADM	3313	Mercantile Law	3
ENTR	2200	Fundamentals of Entrepreneurship	3
FINA	3150	Personal Finance	3
MKTG	3235	Sales Management	3
REAL	4400	Financial Markets and the Banking Sector in Real Estate	3
REAL	4910	Internship	3

Religion (AA and BA)

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 in the presential mode and through online learning.

REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN STUDIES IN RELIGION

General Education Requirements	24 credits
Major Requirements	36 credits
Elective Courses	<u>3 credits</u>
Total	63

General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computing Technologies	3
GEMA 1000	Quantitative Reasoning	3
GEHS 2010	Historical Process of Contemporary Puerto Rico or	3
GEEC 2000	Entrepreneurial Culture	3

Major Requirements - 36 credits

RELI 2013	Compared Religions	3
RELI 2020	Introduction to the Bible	3
RELI 2023	Geography and Biblical Archaeology	3
RELI 2311	History and Theology I	3
RELI 2312	History and Theology II	3
RELI 3013	Old Testament	3
RELI 3024	New Testament	3
RELI 3034	Spirituality	3
RELI 3065	Christian Ethics	3
RELI 3313	History and Theology III	3
EDUC 2021	History and Philosophy of Education	3
EDUC 2031	Developmental Psychology	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 Bachelor of Arts Degree in Studies in Religion provides the academic resources necessary for graduate studies in Religion, Theology and related areas.

Profile of the Competencies of Graduates

The program is designed to permit the development of the following competencies:

Knowledge

To demonstrate knowledge and understanding of:

1. the cultural, political, economic and social background of the Biblical world.
2. the basic aspects of Biblical archeology and their relation with the formation of Biblical writings.
3. the historical background of the development of the Christian mysticism and its diverse manifestations.
4. the basic concepts of theology.
5. the ideas that sustain religious thinking.

Skills

1. To design instructional and administrative plans with religious contents.
2. To handle the art of oratory.
3. To apply the methods and techniques of planning and administration of processes related to organizations of social and religious service.

Attitudes

1. To value religious pluralism in the educational process.

The Aguadilla, Fajardo, and Metropolitan Campuses are authorized to offer this Program. The Metropolitan Campus is also authorized to offer this Program through online learning.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN STUDIES IN RELIGION

General Education Requirements		48 credits
Major Requirements		57 credits
Elective Courses		<u>15 credits</u>
	Total	120

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

RELI	2013	Compared Religions	3
RELI	2020	Introduction to the Bible	3
RELI	2023	Geography and Biblical Archaeology	3
RELI	2311	History and Theology I	3
RELI	2312	History and Theology II	3
RELI	3013	Old Testament	3
RELI	3024	New Testament	3
RELI	3034	Spirituality	3

RELI	3065	Christian Ethics	3
RELI	3220	Religious Organizations	3
RELI	3313	History and Theology III	3
RELI	3337	Religion in Latin America	3
RELI	397_	Special Topics	3
RELI	4100	Christian Education	3
RELI	4200	Analysis of Religious Discourse	3
RELI	4300	Christian Education Curriculum	3
RELI	4353	Philosophy of Religion	3
EDUC	2021	History and Philosophy of Education	3
EDUC	2031	Developmental Psychology	3

Restaurant and Food Services Administration (AAS)

The course of studies for the Associate of 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.

Proficiency Profile of the Graduate

The Associate Degree in Applied Science in Restaurant Management and Food Services is designed to achieve the development of a professional with the following competencies:

Knowledge

Demonstrate knowledge and understanding of:

1. The characteristic elements of the gastronomy and hospitality industry.
2. The impact of the gastronomy and hospitality industry in the social, cultural, economic and environmental spheres of the country.
3. The organizational components characteristic of gastronomic companies.
4. The laws that apply to restaurant operations as part of the country's tourism industry.
5. Marketing tools and their impact on promoting sales of products and services in hotels and restaurants.
6. The ethical precepts in the decision-making in business.

Abilities

1. Demonstrate the ability to make decisions taking into consideration the impact of these on the company.
2. Demonstrate the ability to make changes that allow greater effectiveness in restaurant structures.
3. Perform standardized procedures that allow efficiency in the operation of companies in the gastronomy industry.
4. Make business decisions in controversial situations using ethical precepts as a guide.

Attitudes

1. Demonstrate a positive attitude towards responsible decision-making and commitment to society.
2. Consider the organizational elements as crucial in the successful performance of restaurants.
3. Demonstrate a positive attitude towards customers and suppliers that results in mutually beneficial relationships.
4. Appreciate ethical behavior as an essential for business success.

Retention Requirements

The Associate of Applied Science Degree in Restaurant and Food Services Administration requires that all students comply with the satisfactory academic progress norm established in the University's current General Catalog.

In addition, they must pass all courses required in the major with a minimum grade of C.

The Aguadilla Campus is authorized to offer this Program.

REQUIREMENTS OF THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN RESTAURANT AND
FOOD SERVICES ADMINISTRATION

General Education Requirements	24 credits
Major Requirements	<u>45 credits</u>
Total	69

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Contemporary Puerto Rico	3
		or	
GEEC	2000	Entrepreneurial Culture	3

Major Requirements - 45 credits

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3
HRMT	1200	Introduction to the Tourism and Hospitality Industry	3
HRMT	1300	Introduction to Food and Beverages Management	3
HRMT	1301	Food Production and Service Lab	2
HRMT	2200	Introduction to Marketing in the Hospitality Industry	3
HRMT	2302	Advanced Food Production and Service Lab	2
HRMT	2500	Human Resources Management in the Hospitality Industry	3
HRMT	2600	Beverages Management and Service	3
HRMT	2650	Purchasing Systems and Inventory Control	3
HRMT	2800	Restaurant Development and Management	3
HRMT	2850	Restaurant Management	3
HRMT	2915	Practicum in Restaurant Management	4
HRMT	3500	Technology and Information Systems in the Hospitality Industry	3
TURI	2000	Tourism Legislation	3

Sales (AAS)

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 San Germán Campus is authorized to offer this Program. In addition, the Ponce Campus is authorized to offer this Program online.

REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN SALES

General Education Requirements	24 credits
Core Course Requirements	10 credits
Major Requirements	24 credits
Elective courses	<u>3 credits</u>
Total	61

General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computing Technologies	3
GEMA 1200	Fundamentals of Algebra	3
GEHS 2010	Historical Process of Contemporary Puerto Rico or	3
GEEC 2000	Entrepreneurial Culture	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

Major Requirements - 24 credits

MKTG 1210	Introduction to Marketing	3
MKTG 2223	Consumer Behavior	3
MKTG 2910	Practice	3
MKTG 2970	Seminar in Sales	3
MKTG 3230	Integrated Marketing Communication	3
MKTG 3234	Personal Sales	3
MKTG 3235	Sales Management	3
MKTG 3236	Retail Selling	3

Social Sciences (BA)

The Bachelor of Arts degree in Social Sciences aims to prepare professionals in social sciences with a multidisciplinary approach. The program focuses on the study of the foundations of the social sciences and is supplemented with the study of courses of specific areas to be determined by the student in agreement with his academic adviser and the approval of the department director. It provides a flexible and innovative programmatic vision, which promotes the integral development of students to expand their cognitive and creative capacities, as well as the critical judgment necessary to perform in the contemporary world.

Profile of the Competencies of Graduates

This Program is designed to develop the competencies that will permit students to:

Knowledge

1. Explain the cultural experiences that have contributed to the formation of human beings.
2. Develop a person who knows and understands the problems of human beings in their social and historical process of development.
3. Integrate the interdisciplinary knowledge to the formation of a globalizing vision of the world.

Skills

1. Develop the critical, analytical and constructive thought that will enable you to reflect on the vital problems of human beings.
2. Communicate effectively and analyze and synthesize knowledge from a variety of academic disciplines within Social Sciences.
3. Use information technology for the analysis and solving of problem in Social Sciences.
4. Apply critical thinking from a multidisciplinary conceptual frame.
5. Integrate knowledge in order to develop a person interested in improving the personal, family, social, environmental, economic and political life of Puerto Rico and the rest of the world.

Attitudes

1. Be aware of their personal and social responsibility, and be committed to use their talents for the benefit of others.
2. Show solidarity with other human beings and recognize, respect and defend the dignity and the right of others to their individuality.
3. Foment the participation of humanitarian, environmentalist, political and economic the events of national and international impact.

Admission Requirements

In addition to the admission requirements established in this Catalog, students of this Program must be interviewed when this is necessary. If an interview is necessary for online learning students who will attend courses outside Puerto Rico, this may be conducted through the means available to students. The interview will be supervised by a proctor in the place where the student is located as determined by the University.

The Metropolitan Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SOCIAL SCIENCES

General Education Requirements	48 credits
Core Course Requirements	22 credits
Major Requirements	38 credits
Elective Courses	<u>12 credits</u>
Total	120

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 - 22 créditos

ANTH	1040	Introduction to the Anthropology	3
POLS	1011	Introduction to Political Sciences	3
SOCI	1030	Introduction to Sociology	3
SOCI	2020	Structure, Continuity and Change	3
SOCI	3753	Social Problems of Puerto Rico	3
SOCI	4050	Sociological Theories	3
SOCI	4800	Sociological Research	4

Major Requirements - 38 créditos

Students will take 38 major credits selected from the following disciplines: Sociology, Anthropology, Archeology, Criminology, Political Science, Community Development, Gender Studies and Cultural Studies, among others. The major requirements will be established in agreement between the student and the academic adviser, with the approval of the department director.

Social Work (BA)

This Program aims to form professional generalist social workers in a broad and profound manner in the theoretical and methodological areas, in the development of the necessary competencies, as well as in the clarification of values and attitudes to practice the profession in an effective way. In addition, the Program offers the opportunity to obtain practice experiences with social welfare agencies in Puerto Rico.

The laboratory teaching method used in each course makes it necessary to limit course sections to a maximum of 25 students.

Core Competencies of Graduates

The Program is designed to develop the core competencies, in agreement with the 2015 Educational Policy and Accreditation Standards (EPAS) of the Council on Social Work Education (CSWE) that will allow students at the generalist level to:

1. Demonstrate ethical and professional behavior.
2. Engage diversity and difference in practice.
3. Advance human rights and social, economic, and environmental justice.
4. Engage in practice-informed research and research-informed practice.
5. Engage in policy practice.
6. Engage with individuals, families, groups, organizations, and communities.
7. Assess individuals, families, groups, organizations, and communities.
8. Intervene with individuals, families, groups, organizations, and communities.
9. Evaluate practice with individuals, families, groups, organizations, and communities.

Admission Requirements

To be admitted to the Program, the student must:

1. Fill out the Social Work Program admission form.
2. Have a minimum general grade point average of 2.25 at the university level.
3. Have passed course SOWO 2503 with a minimum grade of B.

Internal and External Transfer Requirements

To be admitted to the Program, internal and external transfer students must:

1. Comply with all admission regulations for transfer and intra-university transfer students as established in the General Catalog.
2. Have a minimum general grade point average of 2.25 of the campus or university of origin.
3. Have an evaluation from the director or academic counselor of the IAUPR if the student wishes to transfer from another institution that offers the Social Work program.
4. To graduate from the Council on Social Work Education (CSWE) accredited program in Social Work, the student must have approved the last courses, equivalent to 51 % of the major credits, in a Social Work Program accredited by the CSWE.

Practice Requirements

To be admitted to the Practice and to enroll Practice Experience in Generalist Social Work I, II: SOWO 4911 and 4912, students must:

1. Have approved ninety (90) credits.
2. Have a general minimum grade point average of 2.50, and also in the major.

3. Complete the application process for the Practice with all the documents required by the Program:
 - Negative certificate of current criminal record issued by the Puerto Rico Police.
 - Health Certificate valid for one year issued by the Department of Health.

Some agencies or programs stipulate additional requirements. The student is responsible for complying with any other requirement that the agency or practice center stipulates. These requirements may be: negative doping test, sex offender registration and hepatitis vaccines.

Graduation Requirements

To graduate with a Bachelor of Arts Degree in Social Work, the student must:

1. Have a minimum grade point average of major of 2.50.
2. Have approved course SOWO 2503 with a minimum grade of B.
3. Have approved the other courses that make up the Major Requirements with a minimum grade of C.
4. To graduate from the Council on Social Work Education (CSWE) accredited program in Social Work, the student must have approved the last courses, equivalent to 51 % of the major credits, in a Social Work Program accredited by the CSWE.

The Aguadilla, Arecibo, Fajardo and Metropolitan campuses are authorized to offer this Program.

The Program of the Arecibo, Fajardo, 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	45 credits
Major Requirements	54 credits
Related Course Requirements	12 credits
Elective Courses	<u>6 credits</u>
Total	117

General Education Requirements - 45 credits

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

Major Requirements - 54 credits

SOWO 2503	Introduction to Social Work	3
SOWO 2505	Theories and Debates in the Social Context of the Profession	3
SOWO 2514	Social Policies and Services	3
SOWO 3461	Individuals and Their Social Environment I	3
SOWO 3462	Individuals and Their Social Environment II	3
SOWO 3504	Introduction to Social Agencies Administration and Supervision	3
SOWO 3801	Communication and Interview Process	3
SOWO 3802	Report Writing	3
SOWO 4873	Social Research Methodology	4
SOWO 4911	Practice Experience in Generalist Social Work I	4
SOWO 4912	Practice Experience in Generalist Social Work II	4
SOWO 4931	Generalist Social Work with Individuals and Families	3
SOWO 4932	Generalist Social Work with Groups	3
SOWO 4933	Generalist Social Work with the Community	3
SOWO 4951	Seminar in Education Practice I	3
SOWO 4952	Seminar in Education Practice II	3

SOWO	497_	Seminar	3
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Related Course Requirements - 12 credits

BIOL	1003	Basic Concepts of Biology	3
POLS	1011	Introduction to Political Science	3
PSYC	3001	Statistical Methods I	3
SOCI	3010	Diversity and Marginality	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

Spanish (BA)

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	<u>12 credits</u>
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 Writing	3
ENGL	3025	Writing of Professional Documents	3
ENGL	3310	Public Speaking	3
SPAN	3015	Oral Communication	3
SPAN	3020	Writing Workshop	3
SPAN	3025	Writing of Professional Documents	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
GERM	1001	Basic German I	4
GERM	1002	Basic German II	4
GERM	2021	Intermediate German I	3
GERM	2022	Intermediate German II	3

Speech and Language Therapy (BS)

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.

Profile of the Competencies of Graduates

The Speech and Language Therapy Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know the procedures and screening instruments for speech, language and hearing used with the population from 0-21 years of age.
2. Know the techniques and strategies for the treatment of disorders of articulation, voice, fluidity and language, in spoken as well as in written speech, in children and young people between 0-21 years of age.

Skills

1. Design activities and materials that adapt to the needs and capacities of the clients to whom you offer services.
2. Document the performance of the client in a precise, concise, objective and quantifiable form in each intervention.
3. Use technology as a tool for therapeutic interventions.
4. Select screening instruments in harmony with the population and the communication problem you are dealing with.
5. Interpret and report the screening results in a reliable manner.
6. Develop appropriate activities for the objectives of the intervention plan designed by the Speech and Language Pathologist, in a logical and organized form.
7. Plan creative follow-up activities to the objectives worked on in the therapy, to be implemented in the daily environments of the child by caretakers.
8. Apply appropriate methods, techniques and strategies in harmony with the condition, level of severity and skills of the client.
9. Develop educational chats and workshops on the prevention of communication disorders for clients, relatives and the community in general.

Attitudes

1. Indicate the importance of maintaining appropriate interpersonal relations with the children to whom you offers services and to their family members.
2. Demonstrate sensitivity towards the needs and the cultural values of clients and their families.
3. Demonstrate the importance of handling properly the conduct of the client in the interventions.
4. Back up your interventions with the ethical theories and principles of the Speech and Language Therapy profession.

Admission Requirements for the Practice

To be admitted to the practice in the Bachelor's Degree of Sciences in Speech Therapy the following is required:

1. A formal application and approval of the director of academic department or his representative.
2. A minimum general grade index of 2.50.
3. A current negative certificate of criminal records issued by the Police of Puerto Rico.
4. A current certificate of health issued by the Department of Health.
5. Evidence of vaccination against Hepatitis B.

Retention Requirements

1. Pass all major and related requirements of the Program with a minimum grade of C, except the practice courses (SPTH 4914, SPTH 4915) which must be passed with minimum grade of B.

Graduation Requirements

1. Pass the courses of the major with a minimum grade of C.
2. Pass the Practice courses with a minimum grade of B (SPTH 4914, SPTH 4915).
3. Meet the graduation requirements established in the current General Catalog.

The Aguadilla, 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	63 credits
Prescribed Distributive Requirements	9-10 credits
Total	<u>120-121</u>

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 (The Natural Environment and the Human Being) in the Scientific and Technological Context category and course GEHS 3050 (Human Formation, Society, and Culture) in the Historical and Social Context category. They will take course GEMA 1200 in the Basic Skills in Mathematics category.

Major Requirements - 63 credits

SPTH	1010	Anatomy y Physiology of Speech and Language	3
SPTH	1011	Normal Development of Language	3
SPTH	1122	Introduction to Audiology	3
SPTH	1123	Ethical and Legal Matters and Clinical Procedures	3
SPTH	1124	Fluency Disorders in Children	3
SPTH	2010	Disorders in Articulation and Phonology	3
SPTH	2015	Voice Disorders in Children	3
SPTH	2024	Use of Technology in the Practice of Speech and Language Therapy	3
SPTH	2110	Cleft Palate and Craniofacial Anomalies	3
SPTH	2120	Intervention with Children with Hearing Impairments	3
SPTH	2130	Cognitive and Psycho-social Conditions Associated with Speech and Language Problems	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	3022	Clinical Documentation in the Profession of Speech and Language Therapy	3
SPTH	3140	Early Intervention	3
SPTH	3141	Therapeutic Interventions for Children with Speech and Language Problems	3
SPTH	3142	Sign Language	3
SPTH	3143	Dysphagia in Children	2
SPTH	3210	Augmentative and Alternate Aid for Communication in Children	3
SPTH	4141	Integration Seminar I	2
SPTH	4142	Integration Seminar II	2
SPTH	4914	Practicum I	1
SPTH	4915	Practicum II	2

Prescribed Distributive Requirements – 9-10 credits

Select nine (9) or ten (10) credits from the following courses:

EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2053	Nature and Needs of Students with Autism	3
EDUC	2870	The Exceptional Student Population	4
EDUC	2905	Nature and Needs of Students with Intellectual Disability and Mental Disorders	3
EDUC	2906	Nature and Needs of Students with Specific Learning Problems, ADD and ADHD	3
EDUC	3290	Classroom Management	3

Tourism (AS and BBA)

Tourism with a Major in Tour Guide (AS)

The Associate of Science Degree in Tourism with a major in Tour Guide 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 Tour Guide license from the Puerto Rico Tourism Company.

Profile of the Competencies of Graduates

The Program is designed to develop the competencies that will permit students to:

Knowledge

1. Know the theoretical and practical foundations of tourism.
2. Know the foundations of the history culture, traditions and tourist attractions of the place where the person is going to serve as tour guide.
3. Know the methods and techniques to handle tourist industry problems.

Skills

1. Design strategies that promote and attend to the needs of tourist development.
2. Promote activities that obligate the professional development of a tour guide.
3. Apply techniques of tourist promotion.
4. Apply the ethical responsibility in the exercise of their functions.
5. Adapt their performance to the interests and needs of the group and to the characteristics of the place where the activity is developed.
6. Demonstrate effective communication skills, including the use of information technology.
7. Design and apply new work technologies.

Attitudes

1. Demonstrate an ethical position committed to the development of practices and techniques that make the professional performance of the tour guide possible.
2. Appreciate the respect and protection of the natural and cultural heritage.

Requirements for Admission to the Internship

In order to be admitted to the Tour Guide 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 A MAJOR IN TOUR GUIDE

General Education Requirements	24 credits
Core Course Requirements	19 credits
Major Requirements	<u>21 credits</u>
Total	64

General Education Requirements - 24 credits

GESP		Spanish	6
GEEN		English	6
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computing Technologies	3
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Contemporary Puerto Rico or	3
GEEC	2000	Entrepreneurial Culture	3

Core Course Requirements - 19 credits

TURI	1020	Fundamentals of Tourism	3
TURI	2000	The Law and Tourism	3
TURI	2060	Tourist Marketing	3
TURI	2200	Culture and Tourist Destinations of Puerto Rico	3
ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3

Major Requirements - 21 credits

TURI	1039	Communication Skills and Interpretation Techniques	3
TURI	1050	The Tourism Guide	3
TURI	1201	Natural Resources Interpretive Guide	3
TURI	2021	Tourism Geography of the Caribbean	3
TURI	2040	Designing and Planning of Tourism Excursions	3
TURI	2201	Tourism Adventure Guide	3
TURI	2913	Practice in Tour Guide	3

Tourism Management (BBA)

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.

This Program is certified by the UNWTO of the World Tourism Organization (<http://themis.unwto.org>).

The Barranquitas and Fajardo campuses are 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	<u>3 credits</u>
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	2101	Corporate Finance I	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	Business Communication in Spanish or	3
OMSY	3040	Business Communication in English	3

Major Requirements - 36 credits

TURI	1020	Fundamentals of Tourism	3
TURI	1200	Tourist Quality and Services	3
TURI	1900	Hotel and Accommodation 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 (BA)

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	58 credits
Prescribed Distributive Courses	6 credits
Elective Courses	<u>9 credits</u>
Total	121

General Education Requirements - 48 credits

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

Major Requirements - 58 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	2270	Kinesiology and Functional Anatomy	3
HPER	2330	First Aid and Personal Safety for Children, Youth and Adults	3
HPER	3040	Legal Foundations in Sports	3
HPER	3480	Nutrition in Sports, Exercise and Physical Activity	3
HPER	4170	Physiology of Human Movement	3
HPER	4305	Sports Training Methodology	3
HPER	4308	Design of Exercise Programs	3
HPER	4310	Sports Training Methodology	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

Prescribed Distributive Requirements - 6 credits

Students will select six (6) credits from the following courses:

HPER	3010	Sports Psychology	3
HPER	3050	Introduction to the Prevention and the Management of Injuries	3
HPER	3495	Principles of Therapeutic Recreation	3

Veterinary Technician (AAS)

The program of Associate Degree in Applied Sciences in Veterinary Technician aims to train professionals who can assist the veterinarian in the procedures of exploration, treatment and pharmacology, prevention and diagnosis of diseases in animals. The graduate will be able to perform other tasks of assistance to domestic animals, in the emergency areas, operations room and first aid, as well as the techniques of taking images and laboratory tests. The program is designed for students who wish to work as assistants in clinics, hospitals, farms and research centers with animals or any other place where the veterinarian needs your assistance.

The Program is designed to develop the competences that allow the student to:

Knowledge

Demonstrate knowledge and understanding:

1. of the offer of veterinary care in areas such as clamping techniques, animal revision, imaging and laboratory tests, among other functions under the supervision of the veterinarian.
2. of the processes of evaluation of emergencies and surgical interventions.
3. of the use of equipment and technology related to the treatment and care of the patient.
4. of the care that should be offered to the sick patient, operated or hospitalized.
5. of the correct evaluation of the patient's data.
6. to identify the educational needs of animal owners to provide education about their care.

Skills

1. Apply the techniques and procedures to assist the veterinarian in the provision of patient care and treatment of diseases.
2. Demonstrate skill in the use and management of equipment, technological means and clinical procedures.
3. Evaluate the patient's condition and their needs for treatment, lodging, nutrition, dental work, among others.
4. Use effective communication techniques and critical judgment to assist the veterinarian in the provision of patient care.
5. Apply safety rules and universal protection measures when offering patient care.

Attitudes

1. Apply ethical and legal principles in the performance of the functions of the veterinary technician.
2. Demonstrate an attitude of responsibility and commitment in the practice of a veterinary technician.
3. technician.
4. Value the importance of keeping their knowledge updated.

The Guayama Campus is authorized to offer this program.

REQUIREMENTS OF THE ASSOCIATE DEGREE IN APPLIED SCIENCES IN VETERINARY TECHNICIAN

General Education Requisites	24 credits
Major Requirements	<u>37</u> credits
Total	61

General Education Requirements- 24 credits

Twenty-four (24) credits are required as established in the General Catalog in the General Education Requirements section for Associate Degrees.

Major Requirements - 37 credits

VETC 1100 Introduction to Veterinary Science	2
VETC 1110 Animal Biology	4
VETC 1120 Animal Anatophysiology	4
VETC 1130 Animal Welfare	3
VETC 2201 Parasitology and Microbiology	3
VETC 2202 Clinical Laboratory	1
VETC 2210 Pharmacology and Toxicology	3
VETC 2220 Veterinary Nursing	4
VETC 2230 Feeding and Animal Nutrition	3
VETC 2240 Radiology	4
VETC 2250 Anesthesia and Surgery	4
VETC 2910 Veterinary Technical Practice	2

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. Ethical values and the use of technology are incorporated.

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. Ethical values and the use of technology are incorporated. Prerequisite: ACCT 1161.

4 credits

ACCT 2041 PUERTO RICO TAX SYSTEM FOR INDIVIDUALS

Discussion of the dispositions of the Internal Revenue Code of Puerto Rico and recent legislation related to individual income taxes including the preparation of the required forms. In addition, the tax obligations imposed by state and federal laws to Puerto Rican employers and the legal responsibility of tax specialists are studied. Ethical values and the use of technology are incorporated. 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 their amendments related to income taxes applicable to corporations, partnerships and other entities. In addition, excise taxes, patents and taxes on property are studied. Ethical values and the use of technology are incorporated. Prerequisite: ACCT 2041.

3 credits

ACCT 2055 COST ACCOUNTING I

Application and analysis of cost accumulation in order to plan, implement and control the operations of the company. The concepts of cost based on the activity, budget and standard cost are included. Ethical values and the use of technology are incorporated.. Prerequisite: ACCT 1161.

4 credits

ACCT 2061 INTERMEDIATE ACCOUNTING I

Application of the accounting cycle. Discussion, analysis, interpretation and application of the national and international accounting conceptual framework. Study and practice of the accounting cycle and the acquisition, classification, valuation and disposition of current and intangible assets. The concepts of professional ethics, international accounting and the use of technology are 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 property, physical plant and equipment, natural resources investments and short and long term liabilities, corporate capital, profit by share and recognition of income for short and long term contracts. The concepts of professional ethics, international accounting and the use of technology are integrated. Prerequisite: ACCT 2061.

4 credits

ACCT 2063 INTERMEDIATE ACCOUNTING III

Discussion, analysis, interpretation and application of theoretical and practical aspects of accounting related to: pensions, rent, corporate income taxes and changes in estimates, accounting principles and correction of mistakes in financial statements. Preparation of complex financial statements and current topics. The concepts of professional ethics, international accounting and the use of technology are integrated. Prerequisite: ACCT 2062.

4 credits

ACCT 2085 FEDERAL TAXES FOR INDIVIDUALS

Discussion of the dispositions of the Federal Internal Revenue Code and recent legislation related to individual income taxes, including the preparation of required forms. Discussion of the special dispositions applicable to the residents of Puerto Rico. Ethical values and the use of technology are incorporated. Prerequisite: ACCT 1161.

3 credits

ACCT 3020 MANAGERIAL ACCOUNTING FOR CPA CANDIDATES

Analysis and application of the foundations of managerial accounting for the certified public accountant examination. Discussion of the concepts of control of costs, construction of budgets and short term decisions in the company. Emphasis in the subjects of variances, the analysis of financial statements and the concept of balance point. Incorporation of ethical values and the use of technology. Prerequisite: ACCT 2055.

4 credits

ACCT 3030 COMPUTERIZED SYSTEMS APPLIED TO ACCOUNTING

Application of the computerized programs used in the processes of gathering, analyzing, interpreting, synthesizing and communication of accounting information. Ethical values and the use of technology are incorporated. Prerequisites: GEIC 1010, ACCT 2061.

3 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. Ethical values and the use of technology are incorporated. 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 3100 SPECIAL AND CURRENT TOPICS IN FINANCIAL ACCOUNTING

Analysis, interpretation and application of recent changes to accounting principles. Emphasis in advanced concepts of financial accounting. Incorporation of ethical concepts in the profession, international accounting and the use of technology for the Certified Public Accountant examination. Prerequisite: ACCT 2063.

4 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 accounting for trusts and estates. Ethical values and the use of technology are incorporated. Prerequisite: ACCT 2062.

3 credits

ACCT 3480 ACCOUNTING FOR BUSINESS COMBINATIONS AND PARTNERSHIPS

Discussion and practice of the methods of accounting for long-term investments and the business combinations. In addition, it includes accounting for mercantile companies and the reorganization and liquidation of corporations. Ethical values and the use of technology are incorporated. Prerequisite: ACCT 2062.

4 crédits

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 2063.

3 credits

ACCT 4010 AUDITING AND ETHICS FOR ACCOUNTANTS

Description of the theory, norms and types of audits, the role of the auditor and the different information (opinions). The ethical principles and the legal responsibility of the auditor are discussed. Includes the planning and design of the audit, the evaluation of internal control and risk, substantive and analytical tests and the preparation of reports. Ethical values and the use of the technology are incorporated. Prerequisite: ACCT 2063.

4 credits

ACCT 4011 PLANNING AND EXECUTION OF THE AUDIT

Analysis and application of the activities in the planning and execution of an audit, according to the principles and norms of the American Institute of Certified Public Accountants (AICPA). Emphasis in the importance of the study of the internal control system of a company, the determination of risk, and the determination and interpretation of audit samples. Incorporation of ethical values, the international standards and the use of technology. Prerequisite: ACCT 4010.

3 credits

ACCT 4012 NORMS IN THE PREPARATION OF AUDIT REPORTS AND VERIFICATION

Analysis and application of the principles and norms of the American Institute of Certified Public Accountants (AICPA) that an auditor must follow when emitting an audit report or verification. Study of other applicable areas that auditors may undertake. Incorporation of ethical values, the international standards and the use of technology. Prerequisite: ACCT 4010.

3 credits

ACCT 4015 FORENSIC ACCOUNTING

Describes the role of the forensic accountant in the financial environment. Study of the legal environment, prevention techniques, detection and research of fraud. In addition, the resolution of disputes, litigation services, fraud in financial statements and taxes are discussed. Ethical values and the use of the technology are incorporated. Prerequisite: ACCT 2063

3 credits

ACCT 4020 BUSINESS LAW FOR CPA CANDIDATES

Study of the legal responsibility of the Certified Public Accountants, Contract laws in the United States, the Uniform Code of Commerce (UCC), and the special laws that regulate commerce and work. Ethical values and the use of the technology are incorporated. Prerequisites: ACCT 2063.

4 credits

ACCT 4912 ACCOUNTING INTERNSHIP

Practice in accounting in an organization or company under the supervision of a professor of the discipline. Requires 135 hours of practice. Prerequisite: Have a minimum average of 3.00 in the accounting major, the approval of the department director or his representative and have passed the following courses: ACCT 2041, 2063, 2085 and 3030.

3 credits

ACCT 4980 RESEARCH IN ACCOUNTING

Research, interpretation and analysis of case studies related to financial accounting, audit and other topics of accounting. Incorporation of concepts of ethics in the profession, writing, international accounting and the use of technology. Prerequisites: ACCT 3100, 4011 and 4012.

4 credits

Courses in Airway Science (AWSC)

AWSC 2000 INTRODUCTION TO AERONAUTICS AND SPACE

Study of the basic foundations of aviation, its historical development, its regulations, the contemporary trends in aerial transportation and general aspects of the aerospace industry.

3 credits

AWSC 2020 AVIATION FUNDAMENTALS

Analysis of the principles of design of airships and their characteristics of yield and operation including the regulations related to the maintenance of airships and related systems. Study of the integration of airports, airspace and air traffic control in the management of the National System of the Airspace. Analysis of the impact of the meteorological and environmental problems in aviation operations. Prerequisite: AWSC 2000.

3 credits

AWSC 2115 PRIVATE PILOT THEORY

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 (FAA). Prerequisites: AWSC 2000, a First Class Medical Certificate issued by a medical doctor recognized by the Federal Aviation Administration (FAR Part 67) and an interview with the Chief Instructor. A minimum grade of C is required for this course. Requires a minimum of 15 hours in a flight devices laboratory. Prerequisite: AWSC 2000.

5 credits

AWSC 2116 PRIVATE PILOT FLIGHT LABORATORY

Flight laboratory for the development of the skills required for the Certification for Private Pilot examination of the Federal Aviation Administration of (FAA). Requires a minimum of 40 flight hours. It may require additional hours of individualized flight theory or training depending on the mastery of the skills required for obtaining the certificate. The certification requirements are publicized by the Federal Aviation Administration of (FAA) and may change at the discretion of the agency. Prerequisites: interview with the Chief Instructor, have approved course AWSC 2115, and have a First Class Medical Certificate issued by a medicine doctor recognized by the Federal Aviation Administration ((FAR Part 67).

1 credit

AWSC 2130 ENGLISH PROFICIENCY FOR AVIATION PROFESSIONALS

Knowledge, development and practice of the skills recommended and used by the Organization of Civil Aviation International (ICAO). Emphasis on vocabulary, pronunciation, fluency and comprehension. 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 3155 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. 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. Students must pass this course with a minimum grade of C. Prerequisites: AWSC 2115 and 2116 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. Students must pass this course with a minimum grade of C. Prerequisites: AWSC 3155 and Private Pilot Certificate with Instruments Rating.

3 credits

AWSC 3300 AVIATION LAW

Discussion and analysis of the principles of law, with emphasis on the statutes and the agreements that regulate aerial transport. Includes the discussion of related contemporary international legal matters. Prerequisite: AWSC 2000.

3 credits

AWSC 3411 PRINCIPLES OF AIR TRAFFIC CONTROL

Study of the basic foundations of air traffic control. Aspects of navigation, meteorology, airspace and the federal aerial regulations are discussed. 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 3300.

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, team work, 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 2115.

3 credits

AWSC 4310 HUMAN FACTORS IN AVIATION

Analysis of the relationship between human beings and the functional environment in aviation. Includes human behavior and performance, perception, memory, learning, and ergonomics. Discussion of the implications of decision-making in risk management. Discussion of physiology and the limitations of the human body. Technology and automation in aviation and the relationship between human beings and the aircraft are illustrated. Prerequisite: AWSC 3600.

3 credits

AWSC 4320 ADVANCED AIRCRAFT SYSTEMS

Analysis of the principles of aircraft systems operation. Prerequisite: AWSC 3160, PHYS 3500 and Commercial Pilot Single & Multi Engine Certificate.

3 credits

AWSC 4340 APPLIED AERODYNAMICS

Analysis of the principles of subsonic, transonic and supersonic aerodynamics, and how these affect the performance of the airship. Prerequisites: AWSC 3160, PHYS 3500 and Certificate of Single-engine and Multi-engine Commercial Pilot.

3 credits

AWSC 4370 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 minimum 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.

4 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 4370, 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 4370, Commercial Pilot Single & Multi Engine Certificate and Flight Instructor Certificate.

1 credit

AWSC 4375 COMMERCIAL HELICOPTER PILOT ADD-ON

Theory and development of the fundamental skills for certification as commercial helicopter pilot of the Federal Aviation Administration. Requires a minimum of 55 flight hours in a helicopter. It may require additional time of individualized contact or flight training depending on the mastery of the necessary abilities for obtaining the certificate. The certification requirements are promulgated by the Federal Aviation

Administration (FAA) and may change at the discretion of the agency. Prerequisites: AWSC 3170, PHYS 3500 and Single-engine and Multi-engine Commercial Pilot Certificate.

2 credits

AWSC 4394 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, especially those related to threats and errors. Requires a minimum of 15 hours of training in a flight training device. It may require additional time in individualized theory or in a flight training device depending on the mastery of the skills required. Prerequisites: AWSC 3160 and Certificate of Single-engine and Multi-engine Commercial Pilot.

3 credits

AWSC 4510 AIRWAY DISPATCHER I

Study of the operations areas for the achievement test for the aircraft dispatcher certification. Prerequisites: AWSC 2020, 3411, 4305 and 4310.

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 4520 AIRWAY DISPATCHER II

Study of the operations areas for the practical test for the aircraft dispatcher certification. Prerequisite: AWSC 4510

3 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 2101.

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 Agricultural Technology (APTE)

APTE 1110 EDAPHOLOGY

Review of the soil's properties, structure, fertility, the organisms in it, and the process of its contamination and degradation. Integration of the models in the viable planning of the use of the land, as well as its preparation for planting and the possible control mechanisms, treatment, and recovery.

3 credits

APTE 1120 PLANT PATHOLOGY

Description of the phytopathogens as a base to improve the control of diseases that affect the crops of the greatest economic importance. Diagnosis and eradication of the diseases by the identification of their symptoms, the agents that cause them and the capacity to use integrated strategies for a sustainable control. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: BIOL 1100.

4 credits

APTE 2200 AGRICULTURAL HEALTH AND SAFETY

Introduction to the fundamental concepts of occupational health and safety in the farming industry. Identification of the factors and environmental dangers related to the equipment and chemical products including their effects and their control. Discussion of the legislation and the practical strategies to identify dangers and to evaluate risks.

3 credits

APTE 2211 CROP PRODUCTION I

Discussion of the fundamentals of the production of agricultural crops and the factors that influence directly in their development. Identification of their morphologic, environmental and reproductive characteristics and the techniques for their seeding and cultivation that have the greatest economic importance. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: APTE 1120.

4 credits

APTE 2212 CROP PRODUCTION II

Development of the theoretical and practical foundations about the different processes of crop production, as well as the industries derived from the crops of the greatest economic importance. Identification of the factors that affect the agricultural systems. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: APTE 2211.

4 credits

APTE 2220 NEW AGRICULTURAL TRENDS

Description of the characteristics, the advantages and the disadvantages of the different techniques of crop production without soil in the production of agricultural crops. Techniques of the preparation and the handling of the substrates and the nutritious solutions, the irrigation systems and the identification and control of the phytosanitary state of the crops. Discussion of the alternatives to optimize the production of the crops in systems of ecological agriculture. Requires 45 hours of lecture and 45 hours of lab.

4 credits

APTE 2230 ANIMAL PRODUCTION

Review of the basic concepts of animal production, with emphasis in the techniques of the care, reproduction and the raising of the best breeds of animals in order to obtain a good production. Description of the main aspects and attributes of the quality of the derived products.

3 credits

APTE 2240 AGRICULTURAL WASTE

Identification of the most appropriate strategies for the use, the handling and the disposal of agricultural wastes to diminish the contamination of the land and water by chemical and organic agents. Comparison

of alternatives for the reduction of the production of wastes at their source and their transformation into ecological products.

3 credits

APTE 2250 AGRICULTURAL EMPRESARISM

Discussion of the administrative and commercial strategies of the technical and practical aspects of the marketing and commercialization of agricultural products. Identification of the main problems that this market faces and their possible solutions. Evaluation of the possibility of supplying the local market and the export of the products.

3 credits

APTE 2910 PRACTICE IN FARMING

Experience for the acquisition, the consolidation and the integration of the skills and competencies that correspond to the profile of the competencies of graduates. One hundred twenty (120) hours of supervised practice in farming production systems. Prerequisite: Authorization of the Program director or coordinator.

2 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 Applications Development (ADEV)

ADEV 2500 INTRODUCTION TO CLOUD NETWORK MANAGEMENT

Study of the basic concepts of cloud computing networks and local networks from an organizational perspective. Study of the different models of TCP / IP and OSI. Discussion of technologies, topologies, equipment, cloud and network security. Prerequisite: COMP 2120.

3 credits

ADEV 3070 INFORMATION SYSTEMS PROJECT MANAGEMENT

Management of an Information System project. Analysis of the organization, planning and control of information system projects. Study of administration of project schedule and resources. Practice in the use of project management programs. Requires a total of 45 conference / laboratory hours. Requires additional hours in an open laboratory. Prerequisite: ADEV 3500.

3 credits

ADEV 3500 DECISION SUPPORT SYSTEM

Analysis of data for intelligent decision making in an organization. Development of a DSS in the managerial and operational phases as support for business planning. Requires a total of 45 conference / laboratory hours. Requires additional hours in an open laboratory. Prerequisite: COMP 2800.

3 credits

ADEV 3850 CUSTOMER RELATIONSHIP SOFTWARE (CRM) ADMINISTRATION

Study of the interaction between customers, sales, and marketing functions. Use of software for automation and sales promotion. Analysis of data warehouse technologies to add transactional and proportional information to reports. Discussion of dashboards and key indicators of a business. Requires a total of 45 conference / laboratory hours. Requires additional hours in an open laboratory. Prerequisite: ADEV 3500.

3 credits

ADEV 397_ SPECIAL TOPICS

Analysis of relevant current issues in the area of applications development. Prerequisite: Authorization of the department director.

3 credits

ADEV 4504 CAPSTONE PROJECT

Development of a practical application development project under the guidance of a faculty member. Prerequisite: Authorization of the department director or program coordinator. Prerequisites: COMP 3015 and ADEV 3850.

4 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 archaeofaunal remains, archaeobotanical 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 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 2150 INTRODUCTION TO BIOINFORMATICS

Introduction to the foundations of information science and computer programming. Study of the numerical systems and the representation of data. Formulation and evaluation of logical functions. Identification and description of programming languages and data operating systems used in bioinformatics. Programs design. Emphasis on the basic structures of data, search algorithms and ordering. Lecture-lab. Requires additional time in an open lab.

4 credits

BIIN 3000 PROGRAMMING FOR BIOINFORMATICS

Analysis, design and implementation of programs by means of an object oriented programming language. Discussion of the foundations of structured, visual and object oriented programming. Error debugging and program documentation. Prerequisite: BIIN 2150. Lecture-lab. Requires additional time in an open laboratory.

4 credits

BIIN 3220 BIOCHEMISTRY

Study of the fundamental concepts of biochemistry, the bio-molecules and the flow of biological information. Analysis of metabolism, carbohydrates, lipids, proteins and nucleic acids.

3 credits

BIIN 4000 DATABANKS

Analysis, design and implementation of different databank models. Databank processing systems. Administration of the structure of standard tables. Introduction to the methods of extracting data with *Data Mining*. Prerequisite: BIIN 3000. Lecture-lab. Requires additional time in an open lab.

4 credits

BIIN 4010 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: BIIN 4000, BIOL 4604 and 4605.

3 credits

BIIN 4020 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. Prerequisite: BIIN 4000.

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 1100 BOTANY AND PLANT PHYSIOLOGY

Identification of the main groups of plants, and their morphologic and reproductive characteristics. Understanding of the operation and the importance of the farming systems and ecosystems. Basic knowledge of the plant anatomy and physiology necessary to understand the development, growth, nutrition, and the answer of plants to the different environmental conditions.

3 credits

BIOL 1101 GENERAL BIOLOGY I

Study of the characteristics and organization of living organisms. Emphasis on the structure of the main macro-molecules, cells, cellular cycle, mitosis and their metabolic processes. Use of scientific reasoning for the study of biological processes. Corequisite: BIOL 1103.

3 credits

BIOL 1102 GENERAL BIOLOGY II

Study of the fundamental concepts of meiosis, gametogenesis, reproduction and development. Includes the genetic processes of Mendelian inheritance, its molecular base, the genetic expression. The basic concepts of ecology and evolution and their relation with genetic aspects are discussed. Prerequisites: BIOL 1101 and 1103.

3 credits

BIOL 1103 BIOLOGY SKILLS LABORATORY I

Development of skills and basic laboratory techniques applied to the study of the biopolymers and the cell. Includes safety rules and proper handling of laboratory equipment. The scientific method for the development of laboratory exercises is used. The writing of reports is required following the scientific formats. Requires 45 hours of presential closed lab. Corequisite: BIOL 1101.

1 credit

BIOL 1104 BIOLOGY SKILLS LABORATORY II

Development of basic laboratory skills and techniques applied to the study of the concepts of cellular reproduction and development, classic and molecular genetics, evolution and ecology. Report writing is required following the scientific formats. Requires 45 hours of presential closed lab. Prerequisites: BIOL 1101 and 1103. Corequisite: BIOL 1102.

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. Prerequisites: BIOL 1101, 1103.

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, structure, function, reproduction and development of the main animal groups in reference to endemic species of Puerto Rico. Emphasis in the ecological and evolutionary interrelations. Requires 30 hours of lecture and 45 hours of presential or virtual closed lab. Prerequisites: BIOL 1102 and 1104.

3 credits

BIOL 2104 BOTANY

Study of the structure, function and reproduction of the main groups of plants, including endemic plants of Puerto Rico. Discussion of the importance of plants in the ecosystems and the socioeconomic impact. Requires 30 hours of lecture and 45 hours of presential or virtual closed lab. Prerequisites: BIOL 1102 and 1104.

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 or 1512 and 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 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 3010 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 mechanisms. Discussion of ethical topics related to genetic manipulation. Prerequisites: BIOL 1102, GEMA 1200.

3 credits

BIOL 3100 FOUNDATIONS OF ANIMAL SCIENCE

Study of the foundations of cattle production and related industries. Includes the related study of the anatomy of the digestive system, nutrition and their metabolism; physiology of the reproductive system and its importance for our economy. Requires 30 hours of lecture and 45 hours of presential or virtual closed lab. Prerequisites: BIOL 2103 and 3010.

3 credits

BIOL 3105 GENERAL MICROBIOLOGY

Study of the microorganisms with emphasis in the bacteria. Includes the morphology, physiology, genetics, taxonomy, ecology, host-parasite relation and control of the microorganisms. Requires 45 hours of lecture and 45 hours of presential closed lab. Prerequisites: BIOL 1102 and 1104 and CHEM 1111.

4 credits

BIOL 3106 HUMAN ANATOMY AND 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 presential or virtual closed lab. Prerequisites: BIOL 1102 and 1104.

4 credits

BIOL 3200 FOUNDATIONS OF ANIMAL NUTRITION

Analysis of the nutrients required by animals, their functions, interrelations and the processes of their use. Study of the composition of forage and its use in the diet and its formulation. Requires 30 hours of lecture and 45 hours of presential or virtual closed lab. Prerequisite: BIOL 3100.

3 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 the morphology, classification and life cycles of the parasites of the human being. The epidemiological, pathogenical aspects and their symptomatology are included. Emphasis in the hospice-parasitic relations. Requires 30 hours of lecture and 45 hours of presential or virtual closed lab. Prerequisite: BIOL 1102.

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

Study of the interactions between the microorganisms and foods; control techniques of microorganisms and fermented food production. Includes the diseases caused by microorganisms in foods, aspects of health and quality control. Requires 30 hours of lecture and 45 hours of presential or virtual closed 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 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 presential or virtual closed lab. Prerequisites: BIOL 2103 and 2104.

3 credits

BIOL 3504 ENVIRONMENTAL HEALTH

Analysis of the interrelation between the environment and the health of the human being, as well as the effect of contamination by wastes. Emphasis in the factors of risk and biological, physical and social implications, as well as prevention and the mechanisms to reduce the environmental impact. Prerequisites: BIOL 1102 and 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 3601 COMPARATIVE ANATOMY AND PHYSIOLOGY I

Comparative analysis of the concepts, adaptations, form and function of the anatomy and physiology of domestic, exotic and laboratory mammals. It includes the integumentary, skeletal, muscular, cardiovascular and respiratory systems. It requires 30 lecture hours and 45 laboratory hours. Requirements: BIOL 1101, 1103, 2103 and CHEM 2212.

3 credits

BIOL 3602 COMPARATIVE ANATOMY AND PHYSIOLOGY II

Comparative analysis of the concepts, adaptations, form and function of the anatomy and physiology of domestic, exotic, and laboratory mammals. It includes the digestive, urinary, endocrine, reproductive, nervous and lymphatic systems. It requires 30 lecture hours and 45 laboratory hours. Prerequisite: BIOL 3601.

3 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 hepatotoxicology and neurotoxicology. Prerequisites: BIOL 3106, CHEM 2222.

3 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 of 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 3010, 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 3010.

3 credits

BIOL 4405 EMBRYOLOGY

Analysis of the anatomy of the embryogenesis of vertebrates with specific emphasis in human beings. Includes the fertilization, implantation, gastrulation, neurulation and organogenesis. 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

Study of microorganisms in industrial processes. Emphasis on the production of metabolites, quality control and the regulations of the pertinent agencies. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 3105 and CHEM 2212.

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, the relation between the cellular structures, their functions and metabolic processes, cellular communication and the flow of molecular information. Discussion of experiments and modern technologies of research that have contributed to the study of the cell. Prerequisites: BIOL 3010 and CHEM 2221.

3 credits

BIOL 4605 CELLULAR AND MOLECULAR BIOLOGY SKILLS LABORATORY

Evaluation and use of specialized methodology in cellular and molecular Biology. Application of techniques of recombinant ADN, protein analysis, culture of cells, and bioinformatics. Research experiences and the writing of reports are performed using scientific formats. Requires 60 hours of presential or virtual closed lab. Prerequisites: BIOL 2153, 3105 and CHEM 2221. Corequisite: BIOL 4604.

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

Study of the fundamental concepts of public health. Emphasis in the magnitude, distribution and causes of diseases in the human populations. Includes the transmission mechanisms of diseases, their incidence and frequency. Prerequisite: BIOL 2153.

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 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 presential or virtual closed lab. Prerequisites BIOL 2153 and 3105 and CHEM 2221.

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 tricarboxylic acid and oxidation phosphorylation. 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 Biopsychology (BIPS, BIOL, PSYC)

BIOL 2100 INTRODUCTION TO NEUROBIOLOGY

Study of the basic anatomical and physiological concepts of the nervous system from the brain to the spinal cord. Emphasis on the nerve systems that process neuronal information. Prerequisite: BIPS 1200.

3 credits

BIOL 4200 NEUROSCIENCE

Discussion of topics related to neuroscience that contribute to the development of the field, with emphasis on basic neural mechanisms, synaptic communication, and the biological perspective of various neurological behaviors and disorders. Prerequisites: BIOL 3106 o BMSC 3012.

3 credits

BIPS 1200 GENERAL BIOPSYCHOLOGY

Study of the relationship between the nervous system and behavior, learning, memory, cognition, and perception. Study of the fundamental notions of the biological basis of sensations, motivation and behavior, among others. Prerequisites: BIOL 1102 y PSYC 1051.

3 credits

BIPS 3900 NEUROSCIENCE OF HUMAN BEHAVIOR

Discussion of the biological basis underlying human behavior with emphasis on neuroanatomy and neurochemistry. Analysis of neurophysiological processes related to vision, the auditory system, sleep, and language production. Emphasis on the influence of different brain structures on emotional states, learning, memory, and mental disorders. Prerequisites: BIOL 2100, BIOL 3106 y PSYC 1051 o BMSC 3011 y BMSC 3012.

3 credits

BIPS 4900 INTEGRATIVE SEMINAR ON BIOPSYCHOLOGY

Integration of knowledge and skills acquired in courses throughout the program. Analysis of case studies and exploration of topics of interest in biopsychology. Requires submission of written papers and oral presentations. Prerequisites: CHEM 2222, BIPS 3900, PSYC 3200 y PSYC 4234.

3 credits

PSYC 3200 COMPARATIVE PSYCHOLOGY

Discussion of the evolution and development of animal behavior from a comparative perspective. Analysis of the mechanisms by which the environment and evolutionary processes determine animal behavior. Comparison of behavioral differences of varied species with human behavior.

3 credits

Courses in Biotechnology (BIOT)

BIOT 2160 MOLECULAR GENETICS

Discussion of the structure and function of nucleic acids in agreement with their role in the flow of genetic information. Analysis of the molecular events associated with the duplication, transcription, translation and control of the genetic expression. In addition, patterns of inheritance and some principles of human genetics are discussed. Requires 45 hours of lecture-lab. Prerequisite: BIOL 1102.

3 credits

BIOT 2250 BIOMANUFACTURING

Analysis of the processes for the manufacturing of biological products that meet the requirements of recovery, purification and quality of the biotechnological industry. Emphasis on the discussion of the regulations established by the regulating agencies, validation and operational aspects to meet the quality requirements of the final product. Requires 3 hours per week of lecture and 3 hours per week of lab. Prerequisite: BIOL 3105.

4 credits

BIOT 3250 MOLECULAR BIOTECHNOLOGY

Analysis of the principles and the application of molecular biotechnology techniques used in the genetic manipulation of prokaryote and eukaryote organisms. Application of techniques of recombinant DNA, restriction enzymes, vectors, cloning, sequencing, and amplification of DNA. Discussion of the ethical and legal aspects related to biotechnology. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: BIOL 2155, 3105.

3 credits

BIOT 3360 TRANSGENIC PLANTS AND FOOD SECURITY

Analysis of biotechnology applications in food production. Emphasis on the impact of transgenic plants on human health and the environment. Discussion of the ethical, legal, economic and regulatory aspects that arise from the development and implementation of biotechnology in society. Requires 45 hours of conference. Requirements: BIOT 3250, CHEM 2222 and MATH 1500.

3 credits

BIOT 3370 BIOTECHNOLOGY OF PLANTS

Analysis of the fundamentals of the molecular genetics of plants and the development of technologies and techniques for genetic transformation. Emphasis on the differentiation of the transformations via chloroplast and nuclear. Study of the function of genes and genomes in the development of transgenic systems. Requires 45 hours of lecture and 45 hours of closed laboratory. Requirements: BIOT 3250, CHEM 2222 and MATH 1500.

4 credits

BIOT 3750 RECOMBINANT DNA TECHNOLOGY

Advanced 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 bioethics and legal aspects related to biotechnology. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: BIOL 3010, 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 4710 AGRICULTURAL AND ENVIRONMENTAL BIOTECHNOLOGY

Analysis of the effects and applications of biotechnology in food production, human health and preservation of the environment. Includes the study of the theoretical and practical foundations in the propagation of vegetable cultivations, current biotechnological strategies, products generated, and the new technology available in the agricultural and environmental areas. Discussion of the ethical, legal and economic aspects that arise from the development and implementation of biotechnology in society. The course consists of 30 hours of lecture and 45 hours of closed lab. Prerequisites: BIOT 3750, BIOL 4433.

3 credits

BIOT 4900 GENOMIC TRANSFORMATION FOR THE IMPROVEMENT OF CROPS

Analysis of the genetic techniques associated with the transformation of plants for the improvement of agricultural products and the control of pests. Emphasis in the study of the theoretical and practical foundations in the propagation of vegetable crops and current biotechnological strategies. Comparison of organic products with those generated by transformation. Requires 45 hours of lecture and 45 hours of closed laboratory. Requirements: BIOT 3250, CHEM 2222 and MATH 1500.

4 credits

BIOT 4928 PROTEIN ANALYSIS AND PURIFICATION

Analysis of the methods used in the separation, purification, filtration and drying of natural and recombinant proteins. Application of the techniques of column chromatography, centrifugation, membrane separation, and electrophoresis, filtration of tangential flow and dried protein analysis. Application of statistics to analyze laboratory results. Discussion of the structure of proteins, the administration and analysis of these activities. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: BIOL 4604, CHEM 4220.

3 credits

BIOT 4954 RESEARCH METHODS IN BIOTECHNOLOGY

Application of the scientific method for the logical handling of problems in biotechnology. Development and training in basic laboratory techniques and in research. Scientific data processing, computerized statistic analysis and presentations of preliminary results of the research projects. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: 15 credits in natural sciences in the areas of biology, chemistry or biotechnology and authorization of the Director of the Department.

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. Illustrations of theory through the use of examples from businesses and the discussion of situations in business enterprises.

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

Analysis of the dynamics of human interactions and behavioral sciences related to the functions and duties of personnel in their work at the individual, group and organizational structure levels. Emphasis on managerial strategies and practices such as: motivation, satisfaction, communication, dealing with change, authority, use and abuse of power, leadership, handling conflict, teamwork, emotional intelligence, labor harassment, values and ethical principles. Prerequisite: BADM 1900.

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 corporate 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 RESOURCE MANAGEMENT

Analysis of the effectiveness of norms and practices related to human resources in organizations. Emphasis on the activities of strategic planning of human resources: analysis, description, specification and design of positions, recruitment, selection and hiring. Includes, in addition, equal opportunity laws in employment, orientation, training and development, actions related to personnel, personnel evaluation, compensation, health and hygiene, worker-employer relations, and audit of the of human resource processes. 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

Integration of the managerial process, with emphasis on line supervision. Discussion of supervisory situations related to strategic and operational planning, human resources management, performance evaluation, the application of the disciplinary process, group morale, work diversity, security and hygiene, the management of time and change, and the ethics in decision-making. 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 3700 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, in addition to the standards applicable to the prevention and mitigation of risks that affect health and hygiene in the work environment.

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 the systematic approach: identification of needs, design, implementation and evaluation of the human resources training and development program, aligned to organizational goals. Planning of training programs that will allow motivation, incentives and development at the professional and personal levels. Emphasis on the importance of the development of competencies that foment an ethical behavior for the attainment of an effective and efficient work environment. 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 in the private sector: constitutional guarantees, laws regarding the work contract, antidiscrimination and employment protection laws, work insurances and licenses, security and hygiene protection. Study of the labor statutory system of

public employees in the government of Puerto Rico, at the central and municipal levels. Discussion of the relationships and new trends of the public work policy and the relevant labor legislation. Prerequisite: BADM 3330.

3 credits

BADM 4350 SYNDICATION AND COLLECTIVE BARGAINING

Application of the legal aspects and syndication practices, 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. Recognition of illicit work practices and the importance of judicial precedents and the use of arbitration in the resolution of labor conflicts. Prerequisite: BADM 4340.

3 credits

BADM 4430 WAGE AND SALARY MANAGEMENT

Application of knowledge in the practices and techniques of strategic compensation and their role in achieving organizational competitive advantage. Study of the components of the personnel remuneration systems; their legal, federal and state structures. Emphasis on the analysis and assessment of positions, wages, salary and benefit management, national and international aspects that influence compensation in the organization. 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 work skills in the field of human resources management. Practice through experience in a real work scenario, coordinated by a university professor and supervised by a professional of the area. One hundred thirty-five (135) hours of practice are required. Prerequisites: have approved 21 credits in major courses with a 3.00 grade point average, 2.50 in the general average, and the authorization of the department director.

3 credits

BADM 4973 INTEGRATION SEMINAR IN HUMAN RESOURCE MANAGEMENT

Analysis of current topics on human resource management. Integration of knowledge, skills and attitudes required for a professional in this field for the strategic planning of an organization. Emphasis on the transition of students to professionals. Prerequisite: To have approved a minimum of 21 credits of the major.

3 credits

Courses in Cardio-Respiratory Care (CARD)

CARD 1130 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. Corequisites: CARD 1210, BIOL 1003.

3 credits

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 1231 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. Corequisites: CARD 1130, 1210.

3 credits

CARD 2110 CARDIO-RESPIRATORY PATHOPHYSIOLOGY

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. Corequisite: 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 2140 CARDIO-RESPIRATORY CARE CLINICS AND REHABILITATION

Clinical community experience of clients with chronic cardio-respiratory conditions. In addition, students are exposed to 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 1220, 1231. Corequisites: CARD 2120, 2233, 2234.

3 credits

CARD 2190 INTEGRATION OF FUNDAMENTAL KNOWLEDGE

This course is designed to integrate the fundamental knowledge of cardio-respiratory care through the different stages of growth and development. Prerequisites: CARD 1130, 2110, 2120, 2233. Co-requisites: CARD 2111, 2131, 2140, 2910.

2 credits

CARD 2233 MECHANICAL VENTILATION

Study of the basic and advanced principles of mechanical ventilation and its application in respiratory care. Emphasis on the technical handling of the new generation of modern ventilators. Development of skills for the use of mechanical ventilation with new parameters in adult, pediatric and neonatal patients. Requires 75 hours of theory. Prerequisites: CARD 1220, 1231. Corequisite: CARD 2140, 2234.

5 credits

CARD 2234 PRACTICE IN MECHANICAL VENTILATION

Supervised clinical practice for the development of basic and advanced skills in mechanical ventilation in cardio-respiratory care. Application of the technical procedures when using first generation ventilators and modern ones of the new generation with emphasis on ventilator parameters for handling the patient. Requires 90 hours of practice.

2 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

Courses in Chemistry (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 or 1512.

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: MATH 1500 or MATH 1511 and CHEM 1111.

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 2212.

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 2250 CHEMISTRY AND SOIL STRUCTURE

Analysis of soils, their physical and chemical properties, topography, erosion, their effects and fertility. Categorization of the viability of different crops and their agronomic classification. Requires 30 hours of lecture and 45 hours of closed laboratory. Prerequisites: CHEM 2222 and MATH 1500.

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 3220 BIOCHEMISTRY WITH COMPUTATIONAL APPLICATIONS

Study of the fundamental concepts of biochemistry and biomolecules. Includes carbohydrates, lipids, proteins and nucleic acids. Study of the structure and function of these molecules with emphasis on computational tools. Requires 45 hours of lecture and open laboratory. Prerequisites: CHEM 2222 and GEIC 1010.

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 4350 CHEMISTRY OF MATERIALS

Analysis of the structure, physical properties, synthesis, reactions and the behavior of substances of technological importance, such as alloys, polymers, ceramic, semiconductors and compound materials. Prerequisites: CHEM 4003 and PHYS 3312.

3 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 4700 AGRICULTURAL CHEMISTRY

Analysis of the effects, implications and applications of fertilizers, insecticides and herbicides on natural resources and human health. It includes the study of the theoretical foundations of biochemistry for the natural or anthropogenic production of fertilizers, insecticides and herbicides. Discussion of the ethical, legal and economic aspects that arise from the implementation of agricultural and environmental chemistry. Requires 30 hours of lecture and 45 hours of closed laboratory. Requisites: CHEM 2222, 3320 and MATH 1500.

3 credits

CHEM 4850 PROCESS VALIDATION

Analysis of the methodologies and applications of the validation process, which is defined as the evidence documented that consistently generates a process or procedure in the elaboration of a product or in the accomplishment of a function that fulfills previously certain specifications. Requires 30 hours of lectures and 30 hours of closed lab. Prerequisites: CHEM 4160, 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 forty hours of practical work in an industrial chemistry scenario or the development of a research project under the supervision of a faculty member of the program. Prerequisite: CHEM 4850.

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. Integration 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

CHEM 4900 CHEMICAL ASSISTANCE FOR IMPROVING CROPS

Identification of the nutritional requirements and of the different crops from which the maximum productivity is obtained. Analysis of the nutrient layer that includes the organic, inorganic component, the ion exchange; soil structure, the richness of macro and micronutrients for the determination of fertilizer use in the application mode. Identify possible pests that could decrease crop production. Determination of suitable herbicides or pesticides for a given situation. It requires 45 hours of lecture and 45 hours of closed laboratory. Requisites: CHEM 4700.

4 credits

CHEM 4970 INDUSTRIAL CHEMISTRY SEMINAR

Integration of the knowledge acquired by means of the oral and written presentation of a topic in the industrial chemistry field. Prerequisite: Have approved 36 credits in chemistry.

1 credit

Courses in Communications, Photography and Communication in Media Production (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 educational content. 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 that govern the industry of graphical design. Emphasis in the elements and the foundations for the development of an effective visual communication. Introduction to one of the most used programs for the creation of vectorized graphs. Requires 30 hours of lecture and 30 hours of closed lab.

3 credits

COMU 1031 PHOTOGRAPHIC TECHNIQUES I

Study of the theory and development of the basic skills of visual communication in digital photography. Emphasis on the use and handling of the camera and in the techniques of image composition. Requires 30 hours of lecture and 30 hours of closed presential lab. Requires the approval of the Director of the Department.

3 credits

COMU 1032 ADVANCED PHOTOGRAPHIC TECHNIQUES II

Study of the theory and practice of the tasks inherent to the photography industry with emphasis on the development of the concept of image creation, photographic study, the work tools and the sale and distribution of photos. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMU 1031.

3 credits

COMU 1035 CREATIVE WRITING FOR MEDIA

Study and application of the foundations and techniques used in the writing of the different formats of librettos for sound production and video. Emphasis in the study of the terminology, formats and development of creative skills. Requires 30 hours of lecture and 30 hours of closed lab.

3 credits

COMU 1045 GRAPHIC PRODUCTION FOR PUBLICATIONS

Study and application of the concepts and techniques that govern the production and the distribution of the publishing design. Emphasis in the design and the composition of printed and digital content, as well as the creation of graphs directed to the visualization of data. Introduction to the software most used for the

creation of publications. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMU 1025.

3 credits

COMU 1051 SOUND PRODUCTION TECHNIQUES

Study of the nature of sound and its behavior. Analysis of how the sound is produced, travels and becomes different forms from energy. Theory and practice in the techniques associated with locution and in the basic concepts and tools that are used in sound production. Requires 30 hours of lecture and 30 hours of closed lab.

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 1070 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 closed lab.

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 2001 CORPORATIVE COMMUNICATION

Study of the bases of corporative communication, as well as of its strategies and tools for a competitive communication.

3 credits

COMU 2002 ADMINISTRATION OF CORPORATIVE COMMUNICATION

Application of the principles and techniques of organizational communication. Study of cases and subjects related to communication in corporative scenes. Prerequisite: COMU 2001.

3 credits

COMU 2003 TRENDS IN COMMUNICATION TECHNOLOGY

Analysis of the new modalities and techniques in the transmission of information in corporative communication. Identification of the technological means used by the company to facilitate internal and external communication.

3 credits

COMU 2010 WRITING FOR MASS MEDIA

Study of the foundations, techniques, skills, styles and the formats of writing for mass media. Includes the writing of press releases, news articles, librettos, announcements and contents in multimodal platforms. Requires activities in an open lab.

3 credits

COMU 2020 COMMUNICATION AND SOCIETY

Analysis of the historical and sociological perspective on the processes of massive communication, public opinion and advertising. Study of the function of massive means of communication in society. Evaluation of mass media contents in the formation of the individual.

3 credits

COMU 2030 FOUNDATIONS OF PUBLIC RELATIONS

Study of the history, theory and practice of public relations. Analysis of its evolution and impact in society, mass media and marketing.

3 credits

COMU 2031 FOUNDATIONS OF PUBLICITY

Study of the theoretical and practical foundations of publicity. Analysis of its development, impact and relevance in social communication. Reflection on ethical and legal elements in publicity. 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 2123 JOURNALISTIC WRITING FOR THE MEDIA

Study and application of the journalistic genre with emphasis in the coverage and writing of the news and report articles for the media. Exploration of the different methods to obtain data, as well as the formats for informative writing. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMU 1035.

3 credits

COMU 2130 PLANNING FOR MEDIA

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, 1035.

3 credits

COMU 2197 CREATIVE PROJECT

Explanation and application of the creative process. Preparation of a project to begin in the field of the communications. Prerequisites: 27 credits in the major.

3 crédits

COMU 2221 SOUND PRODUCTION TECHNIQUES I

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 2222 SOUND PRODUCTION TECHNIQUES II

Study of the theory and practice of the concepts and tools used in sound production in recording studios. Emphasis on the study of the flow of the sound signal, the session of recording, the assembly and the management of microphones and production consoles. Introduction to *Pro Tools*. Requires 30 hours of lecture and 30 hours of laboratory. Prerequisite: COMU 2221.

3 credits

COMU 2226 TECHNIQUES FOR RECORDING OF SOUND

Study of the theory and practice of the concepts and techniques used to record sound in a studio using the program *Pro Tools*. Application of microphone techniques, the assembly of a recording session and the management of clients in real situations. Requires 30 hours of lecture and 30 hours of laboratory. Prerequisite: COMU 2221.

3 credits

COMU 2228 MIXTURE AND POSTPRODUCTION OF SOUND

Study of the theory and practice of the concepts and techniques used for mixture and postproduction of sound in a studio using the program *Pro Tools*. Emphasis on the use of *pluggings* or processors of digital

audio, synchrony of sound and video, and mixtures for radio, video and musical productions. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: COMU 2222, 2226.

3 credits

COMU 2230 LIVE SOUND IN AND OUTSIDE THE STUDIO

Study of the theory and practice of the management of sound inside and outside the studio in live productions such as concerts, theatrical works, religious activities, lectures, recordings of video, among others scenarios. Study, use and management of the equipment used, how it is installed and how it is configured. Production of projects of sound, live in real scenarios. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: COMU 2222, 2226.

3 credits

COMU 2240 BASIC PRINCIPLES OF VIDEO PRODUCTION

Introduction to the basic concepts and techniques of video production. Study of the use of the camera for consumers, illumination and sound for video and preparation for publication with formats of open code programs. Requires 30 hours of lecture and 30 hours of presential closed lab.

3 credits

COMU 2245 PLANNING AND PRODUCTION OF EDUCATIONAL CONTENT

Theory and practice of the processes related to the production of educational contents. Study and use of the stages of pre-production, production and post-production. Emphasis on the design of educational materials through use of mass media. Requires 45 hours of lecture/laboratory. Prerequisites: COMU 1005, 1031, 1035, 1051.

3 credits

COMU 2250 FOUNDATIONS IN SOCIAL MEDIA ADMINISTRATION

Study of the techniques and the tools available for social media administration. Discussion of measurement techniques and the strategies to reach the audience, as well as the laws, regulations, social responsibility and ethics in social media.

3 credits

COMU 2340 TELEVISION PRODUCTION TECHNIQUES

Integration of the theory and practice of the techniques and the principles that govern the production of video in studios and the different means of distribution. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: COMU 1031, 1051 and 2130.

3 credits

COMU 2513 DESIGN OF VISUAL IDENTITY OF BRANDS

Study and application of the concepts and techniques that guide the development of visual identities of brands, as well as of the ethical aspects that deal with the visual communications industry of brands. Introduction to one of the software most used for the edition of images with publishing and advertising aims. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMU 1045.

3 credits

COMU 2520 ADVANCED VOICE AND DICTION

Integration of the theory and practice of the techniques associated with professional voice and diction. Emphasis in the practice of advanced skills of adlibbing and in the creation of a professional demo. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMU 2613.

3 credits

COMU 2610 ILLUMINATION IN PHOTOGRAPHY

Study of the theories of illumination with professional photographic cameras. Emphasis in the light control of the camera, the techniques for the use and manipulation of the natural as well as the artificial light. Use and appropriate management of the lighting equipment. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMU 1031.

3 credits

COMU 2613 RADIO PRODUCTION

Theory and practice of the techniques and the basic principles that govern the production of sound for the radio by air and in Internet. Emphasis in the development of concepts, design of proposals, advanced locution and production of radial programs of diverse types. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: COMU 1051 and 2130.

3 credits

COMU 2621 DIGITAL PHOTOGRAPHIC MANIPULATION

Study and application of the advanced concepts of organization, edition, storage, impression and distribution of digital images. Practice in the use and handling of the camera and computer programs to manipulate digital photos. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: COMU 1025 and 2610.

3 créditos

COMU 2622 ADVANCED PHOTOGRAPHY

Application of advanced techniques for photographic production. Practice in the use and handling of equipment and software by combining techniques and creativity for the creation of photos. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: COMU 2610, 2621.

3 credits

COMU 2840 PROJECT DESIGN AND PRODUCCIÓN IN EDUCATIONAL TECHNOLOGY

Planning, production, preparation for publication and self-evaluation of a multimedia project with educational aims. Writing of a proposal and production of multimedia content that integrates the concepts of video, photography, sound and graphical design. Requires 30 hours of lecture and 30 hours of presential closed lab. Prerequisite: have approved 24 credits of the major and receive the approval of the department director.

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 2920 PHOTOGRAPHIC PORTFOLIO

Planning, production, edition, publication and self-evaluation of the professional photographic portfolio. Prerequisites: have approved 18 credits in major courses with a minimum grade of C, 30 hours of lecture, 30 hours of laboratory and the approval of the department director.

3 credits

COMU 2971 SEMINAR ON NEW TRENDS IN PHOTOGRAPHY

Study of current topics in the field of photography. Analysis of the new trends related to the market, such as strategies, skills, the relation photographer-client, the work conditions and the changes in equipment. Requires the approval of the Department Director and having approved 18 credits in major courses.

2 credits

COMU 2973 SEMINAR IN EDUCATIONAL TECHNOLOGY

Study of current topics in the field of educational technology. Analysis of the new trends related to the market, such as equipment, strategies, skills, the new distribution channels, and work conditions, among others topics. Prerequisite: have approved 24 credits in major courses and receive the authorization of the director of the department.

3 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 3001 STRATEGIC PLANNING

Development of corporative strategic thought that enables the student to design, analyze and evaluate corporative strategic plans. Prerequisite: COMU 2001.

3 credits

COMU 3002 PSYCHOLOGY OF COMMUNICATION

Analysis of the behavior of human beings as consumers of mass media messages from a psychological perspective. Discussion of the processes that affect the attention, analysis and interpretation of the communication messages.

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 PRODUCTION FOR MULTIMEDIA

Production of advertising contents and public relations for traditional and emerging audiovisual media. Includes the preparation of librettos and production techniques applied to public relations, publicity and marketing. Requires activities in an open lab.

3 credits

COMU 3025 INTEGRAL COMMUNICATION OF BRAND NAMES

Application of the principles of planning and management of the integrated communications of brand names. Includes the synthesis of marketing tools, public relations and publicity. Prerequisites: COMU 2030, COMU 2031, MKTG 1210.

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 VIDEO FIELD PRODUCTION

Application of the principles and the techniques that govern video 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 45 hours of closed lab. Prerequisite: COMU 2340.

3 credits

COMU 3043 ADVANCED PRODUCTION FOR RADIO

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 30 hours of closed lab. Prerequisite: COMU 2613.

3 credits

COMU 3050 SEMINAR ON ONLINE RADIO PRODUCCIÓN

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, voice and diction and production for the radio in the operation of an online radio transmitter. Prerequisite: COMU 3043.

3 credits

COMU 3135 WRITING OF DRAMATIC LIBRETTOS

Study and application of the foundations and techniques used in the writing of the dramatic libretto. Emphasis in the development of a history, the creation of characters and environments, the writing of dialogs, as well as the technical elements. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 3040.

3 credits

COMU 3140 GRAPHIC DESIGN FOR VIDEO

Application of the principles and the advanced techniques for the creation of static graphs and moving graphs. Emphasis in the conceptualization and the design of the group of graphs that is used in video production. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: COMU 2513 and 3040.

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 closed lab. Prerequisites: COMU 1031, 2123 and 2621.

3 credits

COMU 3345 ADMINISTRATION AND PRODUCTION OF CONTENT FOR SOCIAL MEDIA

Analysis and application of the techniques and the tools available for the administration and production of contents for social media. Emphasis in the production of contents, as well as in the diffusion and the measurement of the effectiveness of the contents. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2123.

3 credits

COMU 3410 PRODUCTION OF MULTIMEDIA CONTENTS FOR INTERNET

Application of the concepts and theory related to the production of multimedia journalistic contents for Internet. Emphasis in the production of special news articles integrating text, sound, videos, graphs and photos. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: COMU 3040 and 3340.

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 3521 ADVANCED TELEVISION PRODUCTION I

Advanced techniques in the production of videos in studios. The student will put into practice the skills of planning, writing, production of videos and sound, as well as graphical design for the production of complex programs in video. Emphasis in the functions performed by the equipment and in the use and handling of the equipment that is used in the production of television in studios. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: COMU 2613 and 3040.

3 credits

COMU 3522 ADVANCED PRODUCTION OF TELEVISION II

Advanced techniques in the production of videos in a television studio. Emphasis in the planning and production of announcements, mini documentaries and dramas. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: COMU 3521.

3 credits

COMU 3970 CURRENT TOPICS IN COMMUNICATIONS

Discussion of current topics in the field of the communications. Design of special projects based on the subjects discussed.

3 credits

COMU 4020 DESIGN AND PRODUCTION OF A PROJECT FOR SOCIAL MEDIA

Planning, design, production and management of a project for social media. Writing of a proposal, production of content and management of the social accounts of a client. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMU 3410

3 credits

COMU 4320 LEGAL AND ETHICAL ASPECTS

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 MANAGEMENT AND EMPRESARISM FOR MASS MEDIA

Study of the theories of administration and concepts of measurement of the audience that govern management for mass media. Study of the foundations of business and the process to develop a model of businesses. Prerequisite: have approved 50 credits of the major.

3 credits

COMU 4444 FUNDAMENTALS OF MEDIA RESEARCH

Application of the basic techniques of scientific-social research in mass media. Emphasis in research design, the sampling, the instruments for data collection, interpretation and the application of the results. Planning and development of a research subject. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: MAEC 2221 and have approved 60 credits of the major.

3 credits

COMU 4491 PROFESSIONAL PRACTICE

Practical experience in a work environment related to the student's major. This practice will be carried out in a company, institution or organization in or outside Puerto Rico, with which the Institution has established an agreement. Requires more than 300 hours of practice during the academic term. Prerequisite: to have approved 66 credits of the major with a minimum index of 3.00.

6 credits

COMU 4492 ACADEMIC INTERNSHIP

Educational experience in areas related to the student's major in a University outside Puerto Rico that forms part of the partnerships established with the Institution. Requires a minimum of 90 contact hours. Prerequisites: to have a minimum academic index in the major of 3.00, and the authorization of the department director.

6 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 PUBLICITY

Current topics in the field of public relations and publicity. 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

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 30 hours of closed lab. Prerequisite: MATH 1500.

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 4422 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-lab. Prerequisite: COEN 3410.

3 credits

COEN 4423 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-lab. Prerequisites: COEN 3410, 4510.

3 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 30 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 30 hours of closed lab. Prerequisites: ELEN 3320 and COEN 2220 or ENGR 2130.

4 credits

COEN 4560 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-lab. Prerequisite: COEN 3510.

3 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 30 hours of closed lab. Prerequisites: ELEN 4010, 4410.

4 credits

COEN 4550 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-lab. Prerequisite: COEN 4510.

3 credits

COEN 4915 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 chair.

3 credits

COEN 4921 UNDERGRADUATE RESEARCH IN COMPUTER ENGINEERING I

Development of a research project in the area of computer engineering under the supervision of a faculty member. The student will dedicate a minimum of 135 hours of work in the development of this project. Requirement: Approval of the department chair.

3 credits

COEN 4922 UNDERGRADUATE RESEARCH IN COMPUTER ENGINEERING II

Development or continuation of a research project in the area of computer engineering under the supervision of a faculty member. The student will dedicate a minimum of 135 hours of work in the development of this project. Requirements: COEN 4921 and the approval of the department chair.

3 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 2025 DEVELOPMENT OF WEBPAGES

Discussion of the concepts of designing and developing WebPages. Application of the HTML and Javascript languages together with CSS for the creation of WebPages. Creation and adaptation of multimedia elements to be used in interactive pages. Requires 45 hours of lecture-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

Formulation of arithmetical and logical expressions. Representation of algorithms by means of the use of flow charts and pseudo codes. Application of the basic search and ordering structures of data and algorithms. Requires 30 hours of lecture and 30 hours of closed 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

Application of programming fundamentals, data types, declarations of variables and control structures, such as sequence, selection and iteration, by means of a structured programming language. Development of modular programs that use data structures, archives, pointers and data transfer through functions with parameters. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMP 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 HTML. 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

Analysis of the object-oriented methodology. Application of the projects of the object-oriented programming, such as abstraction, encapsulation, polymorphism and inheritance. Requires 45 hours of lecture-lab. Prerequisite: COMP 2315.

3 credits

COMP 2501 DISCRETE COMPUTATIONAL STRUCTURES I

Application of propositional logic, inference rules, theory and algebra of sets in solving problems addressed to computer science. Verification of statements through mathematical induction. Application of the theory of graphs and trees in the representation of models. Introduction to matrix theory. It requires 45 hours of conference-laboratory. Requisite: MATH 1500 or MAEC 2140.

3 credits

COMP 2502 DISCRETE COMPUTATIONAL STRUCTURES II

Application of the theory of matrices in linear transformations. Application of count techniques and combinatory analysis in the principles of discrete probability. Application of boolean algebra and Karnaugh maps in the simplification of boolean functions and combinatory circuits. Analysis of relations and functions. Requires 45 hours of lecture-lab. Prerequisite: COMP 2501.

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 2800 DATABASES

Discussion of the components and operation of a basic database system. Description of the different data models for the design and implementation of a database by means of the use of the Organization-Relation model. Application of SQL. Requires 45 hours of lecture-lab. Prerequisite: COMP 2315.

3 credits

COMP 2850 MOVABLE COMPUTATION

Discussion of tools and platforms for the design of movable applications. Design of programs considering their ease of utilization. Creation of applications by means of the use of a development platform for movable devices. Requires 45 hours of lecture-lab. Prerequisite: COMP 2315.

3 credits

COMP 2900 DATA STRUCTURES

Analysis of problem solving with abstract data types. Application of structures of linear and nonlinear data and techniques for the administration of data, such as: recursive processes and search and ordering algorithms. Analysis of algorithm efficiency. Requires 45 hours of lecture-lab. Prerequisites: COMP 2400, 2501.

3 credits

COMP 2970 SEMINAR AND PRACTICE

Research on ethical topics in the Computer Science area. Supervised professional practice in companies, organizations, agencies or other enterprises compatible with the computational areas where skills and knowledge are applied. Requires 30 hours of seminar and the completion of a minimum of 60 hours of practice. Prerequisites:

3 credits

COMP 3015 WEB PROGRAMMING WITH DATABASES

Integration of databases and dynamic pages in the development of programs for the WEB. Programming of forms for data capture, validation and presentation. Requires 45 hours of lecture-lab. Prerequisite: COMP 2800.

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 3300 ORGANIZATION AND COMPUTER ARCHITECTURE

Analysis of the structure and architecture of processors and multiprocessors with emphasis on the characteristics, benefits and interaction of the functional components. Discussion of the foundations and strategies of access and administration of data. Analysis of memory hierarchies and architectures. Application of digital logic for the representation of data. Requires 45 hours of lecture-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 stages of development of software with emphasis on the management of projects and the engineering of requirements. Comparison of development models and application of the Object-oriented model with UML. Requires 45 hours of lecture-lab. Prerequisites: COMP 2800, 2900.

3 credits

COMP 3500 OPERATING SYSTEMS

Analysis of the concepts and functions of operating systems. Description of resource management, such as processes, memory and file systems. Discussion of the administration of real and virtual memory. Analysis of concurrence, security and protection. Requires 45 hours of lecture-lab. Prerequisite: COMP 3300.

3 credits

COMP 3600 COMPUTER GRAPHICS

Discussion of the principles and basic techniques for the generation of computer graphics. Programming for the generation of lines, primitive geometric curves using the API in a programming language. Analysis of visualization techniques: windows, cuts and views. Application of linear transformations in two and three dimensions: transfer, rotation, changes of scale, reflection and deformation. Application of interaction techniques. Requires 45 hours of lecture-lab Prerequisites: COMP 2502, 2900.

3 credits

COMP 3800 PROGRAMMING LANGUAGES

Analysis of the design and implementation of programming languages as a algorithm representation tool. Comparison of different paradigms of programming languages that includes imperative, functional, logical, object-oriented and dynamic paradigms. Description of the formal aspects of the syntax and semantics of the language. Requires 45 hours of lecture-lab. Prerequisite: COMP 2900.

3 credits

COMP 3900 VISUAL COMPUTATION

Application of human-computer interaction concepts. Development of applications with graphical interfaces and interaction with databases. Design and production of reports. Requires 45 hours of lecture-lab. Prerequisite: COMP 3015.

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 4160 PARALLEL PROCESSING

Analysis of architectures of parallel processors and multiprocessors. Development of control algorithms for parallel and concurrent processes. Evaluation of the execution yield of parallel programs. Requires 45 hours of lecture-laboratory. Prerequisite: COMP 3500.

3 credits

COMP 4200 TELEPROCESSING AND NETWORKS

Analysis of computer network architectures and communication protocols. Design of networks considering the principles of security in data communication. Comparison of communication and distributed processing protocols. Requires 45 hours of lecture-lab. Prerequisites: COMP 2502, 3300.

3 credits

COMP 4210 COMPUTING IN THE CLOUD

Analysis of the concepts and technologies that facilitate the creation of a global market for Cloud Computing services. Comparison of infrastructure technologies, architecture models, platforms, services, security, allocation of resources and development of Private Cloud. It requires 45 hours of conference-laboratory. Requisite: COMP 3300 or ADEV 2500.

3 credits

COMP 4220 ADVANCED TELEPROCESSING AND NETWORKS

Analysis of the modulation techniques in data transmission. Classification of networks and communication protocols. Analysis of the behavior aspects of a system, including confidentiality, data integrity, availability, and access control. Requires 45 hours of lecture-lab. Prerequisite: COMP 4200.

3 credits

COMP 4230 INSTALLATION AND CONFIGURATION OF PHYSICAL COMPONENTS FOR NETWORKS

Analysis of the installation and configuration of equipment connected to a communications network, as well as the evaluation and preparation of transmission means. Requires 45 hours of lecture-lab. Prerequisite: COMP 4220.

3 credits

COMP 4235 OPERATING SYSTEMS FOR NETWORKS

Analysis of the concepts and functions of the operating systems for information networks. Includes access to resources, services and protocols. Demonstration of installation, configuration and maintenance of operating systems for networks. Requires 45 hours of lecture-lab. Prerequisites: COMP 3500, 4200.

3 credits

COMP 4240 NETWORK MANAGEMENT

Discussion of the basic functions of planning, organization, control and maintenance of a computer network. Analysis of the structures and procedures for the evaluation and selection of programs and equipment for the installation and configuration of a network. Development of techniques for the detection of problems, data transmission control and security. Requires 45 hours of lecture-lab. Prerequisite: COMP 4230.

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 4410 COMPUTATIONAL SECURITY

Analysis of the foundations for the detection of risks and threats against information systems. Evaluation of the vulnerability of computer systems. Application of controls and methods of protection in the safe and reliable operation of an information system. It requires 45 hours of conference-laboratory. Requisite: COMP 3300 or ADEV 2500.

3 credits

COMP 4410 COMPUTER SECURITY

Analysis of the fundamentals for the detection of risks and threats against information systems. Evaluation of the vulnerability of computer systems. Application of control and protection methods in the safe and trustworthy operation of an information system. Requires 45 hours of lecture-lab. Prerequisite: COMP 3300.

3 credits

COMP 4415 FORENSIC COMPUTATION

Analysis of the fundamental concepts used in a computer science forensic investigation. Application of methods and techniques necessary for the extraction of data from digital devices that can be used in investigations of a legal nature. Requires 45 hours of lecture-lab. Prerequisite: COMP 3300.

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 4480 ARTIFICIAL INTELLIGENCE

Discussion of the fundamentals, concepts and applications of artificial intelligence. Analysis of the intelligent agents' paradigm, knowledge representation, machine learning and search and reasoning strategies. Programming in a functional language as a means for the application of the fundamentals and techniques in problem solving. Requires 45 hours of lecture-lab. Prerequisite: COMP 2900.

3 credits

COMP 4580 INTRODUCTION TO ROBOTICS

Classification of robotic technology and its applications. Description of the components of a robot, including manipulators, actuators, extreme effectors, controllers, sensors and systems of artificial vision. Application of linear transformations in the development of kinematic and dynamic models in robotics. Planning of tasks in programming languages for robotics. Requires 45 hours of lecture-lab. Prerequisites: COMP 2900, PHYS 3001.

3 credits

COMP 4910 PRACTICE AND PROFESSIONAL ETHICS

Performance of tasks by means of the application of the knowledge and skills included in the Program in an actual work environment and in an institution approved by the practice coordinator. Integration of topics related to the ethics of the profession. Requires a minimum of one hundred thirty-five (135) hours of practice. Prerequisites: COMP 4200, 4400.

3 credits

Courses in Computerized Tomography and Magnetic Resonance (CTMR)

CTMR 3000 INTRODUCTION TO COMPUTERIZED TOMOGRAPHY AND MAGNETIC RESONANCE

Introduction to the operational aspects of the equipment of computerized tomography and magnetic resonance and to the components of the digital system. Discussion of the operation of the equipment to carry out the radiological procedures of both modalities. Emphasis on the proper treatment of patient care during the procedures.

2 credits

CTMR 3010 SECTIONAL ANATOMY AND PATHOPHYSIOLOGY

Study of the anatomical structures and their pathophysiology. Identification of these in the different planes by means of the use of x-ray sectional images and corpses in computerized tomography and magnetic resonance. Description of the particular anatomy of each observed structure according to the images of both modalities.

4 credits

CTMR 3020 PHYSICS OF COMPUTERIZED TOMOGRAPHY

Introduction to the historical development and the evolution of computerized tomography. Analysis of the physical principles and the quality of the image. Discussion of the acquisition methods and data processing. Emphasis on the components of the acquisition system and on the reconstruction of the image.

3 credits

CTMR 3025 PHYSICS OF MAGNETIC RESONANCE

Introduction to the historical development and evolution of magnetic resonance. Analysis of the physical principles and the quality of the image. Discussion of the methods of acquisition and data processing. Emphasis on the components of the system of acquisition and on the reconstruction of the image. Prerequisites: CTMR 3000, 3010.

3 credits

CTMR 3050 PROCEDURES AND PATHOLOGY IN THE IMAGES OF COMPUTERIZED TOMOGRAPHY

Study of the protocols and the pathology in computerized tomography. Discussion of the indications to carry out the procedures. Analysis of the implications that the use of contrast methods have and their reactions to the patient. Review of the images obtained by means of computerized tomography. Prerequisites: CTMR 3000, 3010.

4 credits

CTMR 3060 PROCEDURES AND PATHOLOGY IN THE IMAGES OF MAGNETIC RESONANCE

Study of the protocols and the pathology in magnetic resonance. Integration of the use of antennas, sequences, protocols and positioning of the patient. Evaluation of the implications of the use and the reactions to the contrast methods. Review of the images obtained by means of magnetic resonance. Prerequisites: CTMR 3000, 3010.

4 credits

CTMR 4010 COMPUTERIZED TOMOGRAPHY MSK

Analysis of the techniques of tracking related to the criteria for the acquisition of ultrasound high resolution images applied to the muscular skeletal regions in computerized tomography. Includes the criteria of position, protocol options and interventional procedures with the use of contrast methods.

3 credits

CTMR 4011 MAGNETIC RESONANCE MSK

Analysis of the techniques of tracking related to the criteria for the acquisition of ultrasound high resolution images applied to the muscular skeletal regions in Magnetic resonance. Includes the criteria of position, protocol options of and interventional procedures with the use of contrast methods.

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 4030 INTEGRATION SEMINAR

Integration of the knowledge, skills and attitudes in the realization of radiological studies subspecialized in computerized tomography and magnetic resonance. Prerequisites: CTMR 3020, 3025, 3050, 3060.

2 credits

CTMR 4910 PRACTICE IN COMPUTERIZED TOMOGRAPHY

Supervised clinical experience for the integration of the technical skills and the knowledge required of a technologist in diagnostic images in computerized tomography. Practice under the supervision of the clinical instructor in an cooperating agency. Two Hundred forty (240) hours of practice. Prerequisites: CTMR 3020, 3050.

4 credits

CTMR 4920 PRACTICE IN MAGNETIC RESONANCE

Supervised clinical experience for the integration of the technical skills and the knowledge required of a technologist in diagnostic images in magnetic resonance. Practice under the supervision of the clinical instructor in a cooperating agency. Two Hundred forty (240) hours of practice. Prerequisites: CTMR 3025, 3060, 4910.

4 credits

Courses in Contemporary Dance (DANC)

DANC 2000 CORPORAL AWARENESS AND ANATOMY

Study of the different parts from the body, their functions and their creative potential in the context of movement. Knowledge and application of anatomical terminology in performance in the field of dancing.
3 credits

DANC 2010 PRINCIPLES AND TECHNIQUES OF CONTEMPORARY DANCE

Analysis of the conceptual approaches of contemporary dance and their background. Emphasis on the decade of the 60s as a starting point to study the theory and practice of the development of contemporary dance.
3 credits

DANC 2230 HISTORY OF CONTEMPORARY DANCE

Study of the history of the contemporary dance and related forms from the modern dance to the present time. Discussion of the origins, periods, trends, techniques, creators, influences and the companies that have contributed to the development of the contemporary dance.
3 credits

DANC 2240 DYNAMICS OF THE BODY IN THE CARIBBEAN DANCE

Study of the dynamics of movement in the Caribbean dance and the corresponding rhythmical structures. Use of experimentation techniques aimed at activating the imaginative capacity both individually and collectively. Anthropological review of the musical and dance forms of the Hispanic Caribbean.
3 credits

DANC 3020 CONTEMPORARY DANCE TEACHING STRATEGIES

Theoretical and practical analysis of the methods and techniques in teaching dance. Discussion of the strategies for teaching dance in diverse contexts and educational environments.
3 credits

DANC 3250 CHOREOGRAPHIC PRINCIPLES

Discussion of theoretical and practical principles of the choreographic process. Analysis of concepts regarding form, rhythm, space, time and energy, as well as of the use of different genres and musical forms. Study of diverse techniques of choreographic composition and development of movement, with emphasis on the search of one's own expression.
3 credits

DANC 3360 PRODUCTION OF THE ARTS

Discussion and practice of the phases that make up a production, from the conceptual development and the artistic creation to the presentation and post-production. Identification and discussion of the esthetic, legal, labor and economic aspects to create an artistic project, as well as the strategies to obtain financial support.
3 credits

Courses in Criminal Justice and Criminal Investigation (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 1010 POLICE AND COMMUNITY

Study of the social problems in the communities, the strategies of prevention, intervention and integration of the law enforcement agents in the communitarian context. Emphasis on the relation of police and the community.

3 credits

CJUS 2010 CRIMINAL PROCEDURES IN JUSTICE SYSTEMS

Study of the general principles of the right to a process of criminal justice from the point of view of intervention of the law enforcement officer in our criminal justice systems. Analysis of the applicable legislation.

3 credits

CJUS 2050 VICTIMS OF CRIME

Discussion on the victims of crime and their rights 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.

3 credits

CJUS 2075 SOCIAL DEVIATION

Discussion of the theoretical and conceptual foundations of social deviation. Emphasis on the identification of the biopsychosocial factors that influence altered conduct and social reaction.

3 credits

CJUS 2080 CRIMINAL LAW, SCIENCE, AND ENVIRONMENT

Study of the relationship between criminal law and the environmental protection system of Puerto Rico and the United States. Analysis of the criminal provisions of environmental laws. Discussion of evidence requirements related to cases of environmental crimes. Analysis of community organizations and the scientific community in the application of penal environmental norms.

3 credits

CJUS 2090 JUVENILE JUSTICE SYSTEM

Discussion of the origin, philosophy and development of the Juvenile Justice System and its substantive and procedural aspects. Emphasis on the system response to juvenile delinquency, its course, development and analysis.

3 credits

CJUS 2095 ETHICS IN PROCESSES OF PREVENTION AND POLICE INTERVENTION

Study of the ethical principles that govern the strategies of prevention and police intervention. Discussion of the applicable legislation and jurisprudence.

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 2260 FOUNDATIONS OF CRIMINAL INVESTIGATION

Knowledge of the essential elements of criminal investigation. Discussion of the norms regarding evidence and the judicial procedure. Presentation of the ethical problems of investigation.

3 credits

CJUS 3015 WOMEN FACED WITH CRIME

Analysis of the contemporary vision of women facing crime and the criminal justice system. Emphasis on the theories regarding women in relation to 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 INTERROGATIONS

Study of interviewing and interrogation techniques as sources of primary information in criminal investigation. Emphasis on these techniques and report preparation and procedures for presentation. Simulated practical experiences.

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 social repercussion. Includes the evolution of sanctions, correctional models, therapeutic strategies and institutional treatment in the criminal justice system.

3 credits

CJUS 3045 RIGHTS OF THE CORRECTIONAL POPULATION

Analysis of disciplinary, civil and criminal actions and security measures. Includes legislative, administrative and judicial decisions applicable to the rights of the correctional population.

3 credits

CJUS 3055 FEDERAL JURISDICTION

Study of the federal system, the relationship with the states, territories and the central government. 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 and 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 3085 CRIMINAL LAW AND IMMIGRATION

Study of the history and operation of the United States immigration system and the relationship between state and federal jurisdiction in the field. Discussion of convergence issues between criminal law and immigration law. Analysis of legal dispositions applicable in removal processes at immigration administrative courts and the criminal norms that are used in these processes.

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 3250 CRIMINAL INVESTIGATION

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. Simulated practical experiences. Prerequisites: CJUS 3025, 3030.

3 credits

CJUS 3300 ALTERNATE METHODS IN THE RESOLUTION OF CONFLICTS

Analysis of alternate methods in the resolution of conflicts. Study of the negotiation techniques necessary to solve legal problems.

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 health approaches, mitigation and medication, decriminalization and legalization of drugs.

3 credits

CJUS 4035 MODERN TECHNOLOGY IN CRIMINAL INVESTIGATION

Application of modern technology in the field of the criminal investigation with emphasis on forensic science. Exposure to simulated practical experiences where the integration of theoretical tools, the techniques and the methods in criminal research are produced. Prerequisite: CJUS 3250.

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 3250.

3 credits

CJUS 4060 FRAUD DETECTION AND MANAGEMENT

Analysis of the concept of fraud and its different manifestations in public and private institutions. Application of the investigation methods in cases of fraud. Discussion of alternatives for prevention and applicable legislation. Prerequisites: CJUS 3025, 3250.

3 credits

CJUS 4500 SOCIAL-SCIENTIFIC RESEARCH METHODOLOGY

Study of the nature, scope, methods, and designs of research and the steps to follow in social-scientific research and its application to the discipline. Analysis of research projects performed in the field of social sciences for the identification of the different research components, such as the topic, the problem, the method and the design used, the instruments and the techniques for data collection, data analysis, and interpretation of the results. Includes the discussion of a responsible conduct in research. Prerequisite: PSYC 3001.

4 credits

CJUS 4914 PRACTICE IN CRIMINAL INVESTIGATION

Integration of knowledge, skills and attitudes in the work scenario in the area of criminal investigation, supervised by a professor. This Practice will take place in Puereto Rico. A minimum of 135 hours of practical experience are required. 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 PRACTICE IN FORENSIC INVESTIGATION

Integration of knowledge, skills and attitudes in a work scenario in the area of forensic investigation, supervised by a professor. This Practice will be taken in Puerto Rico. Requires a minimum of 135 hours of practical experience. Prerequisites: Minimum of 90 approved credits, including 12 credits of the major, and compliance with all requirements established in the Practice 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. Review of the changes in laws, regulations and administrative provisions applicable to the study area. Prerequisites: CJUS 2090, 3025, 3030 or 2205, 3250 or 3241 and SOCI 2080.

3 credits

Courses in Criminology (CRIM)

CRIM 2010 SOCIOLOGY OF LAW

Sociological and historical description of the different legal structures: their development, institutionalization and praxis. Emphasis on State organisms and their power relationships.

3 credits

CRIM 2020 VICTIMOLOGY

Identification of the characteristics of criminal behavior with emphasis in the victim-killer relation. Description of the passive-active participation of the victims of crime with emphasis on prevention strategies.

3 credits

CRIM 2100 PENOLOGY AND SOCIETY

Distinction of the strategies to protect society from the behaviors typified as crimes. Description of the stages of the penal process. Explanation of prevention strategies of criminal recidivism.

3 credits

CRIM 2200 LANGUAGE, SOCIETY AND CRIMINALITY

Introduction to pathological linguistics and the analysis of the speech applied to the study of the language in the legal system. Emphasis in the crimes based on the use and abuse of language within the legal system.

3 credits

CRIM 3000 INFOMATICAS AND CRIMINALITY

Discussion of the theoretical, technical and legal matters of informatics crimes. Analysis of the strategies of prevention and criminological intervention.

3 credits

CRIM 3014 THE MEDIA AND CRIME

Distinction of the interrelation between mass media, public opinion, criminality and the State. Analysis of the messages of massive communication.

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 1010.

3 credits

CRIM 3021 DIVERSITY AND CRIMINALITY

Analysis of the processes of inclusion and exclusion from the multiple manifestations of diversity. Emphasis in the identification of the criminalized difference discursively.

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 3500 PHILOSOPHY OF CRIMINOLOGICAL KNOWLEDGE

Discussion of the epistemological, ontological and axiological foundations of social-scientific knowledge. Analysis of their implications within criminological research.

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 397_ SPECIAL TOPICS IN CRIMINOLOGY

Analysis and discussion of specific topics related to criminology.

3 credits

CRIM 4015 CRIMINOLOGICAL SOCIAL RESEARCH

Analysis 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: CRIM 3500 and 3900.

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 the contemporary social problems of criminological interest. Discussion of matters of social interest at the local and global level.

3 credits

CRIM 4910 INTERNSHIP IN CRIMINOLOGY

Integration of knowledge, skills and attitudes in a work scenario in the area of criminology. This internship will be performed in Puerto Rico. 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 Culinary and Gastronomic Sciences (GASC)

GASC 1000 CULINARY FUNDAMENTALS

Introductory study of gastronomy with a perspective in the professional vocation of culinary arts. Emphasis in the analysis of local and global gastronomy. Discussion of the techniques of culinary development, measurement, and the tools most used in professional kitchens. Requires 45 hours of lecture-lab.

3 credits

GASC 1200 SELECTING RAW MATERIALS

Introductory study of agricultural products, meat, fish and seafood most used in professional kitchens. Includes the seasonings used in cooking and the families to which they belong. Emphasis in the quality factors and the uses and profile of flavors of different products. Discussion of the basic techniques of cuts of meats, as well as those of handling of fish and seafood. Requires 45 hours of lecture-lab. Prerequisite: GASC 1000.

3 credits

GASC 2010 CULINARY SKILLS I

Discussion of the basic concepts of the professional kitchen and its flow of work. Use of kitchen equipment and tools, as well as the application of the security and hygiene norms. Includes the preparations of broths, soups, mother sauces and the cutting of vegetables. Requires 30 class hours and 90 hours of closed lab. Corequisite: GASC 1000.

4 credits

GASC 2015 NUTRITION Y CULINARY HORTICULTURE

Study of the basic concepts of the production of vegetables and the new trends in the production of crops and their impact in nutritious eating. Emphasis in the application of concepts of nutrition in food preparation.

3 credits

GASC 2020 CULINARY SKILLS II

Application of the knowledge of making precision cutting by using the correct tools. Includes the skills of planning for the preparation of vegetables, rice, rhizomes, dry and liquid proteins, trimmings and embellishments. Emphasis in the preparation of cold food and small appetizers, as well as the places of finished plate production. Requires 30 class hours and 90 hours of closed lab. Prerequisite: GASC 2010.

4 credits

GASC 2500 PUERTO RICAN GASTRONOMY

Discussion of the evolutionary development of Puerto Rican gastronomy. Includes the profiles of the flavors in the different cooking techniques, analysis of the ingredients and the skills most common in the Puerto Rican kitchen. Requires 15 class hours and 60 hours of closed lab. Prerequisite: GASC 2020.

3 credits

GASC 2800 COMPLEMENTARY BREAD BAKING

Application of the operations of a bakery and their complementariness in the modern operations of the gastronomic industry. Application of cooking techniques in the work of small stations of production, the conservation of materials and service to the client. Includes daily preparations of the bakery based on the type of operation. Professional experiences in the administrative area of the operation of bakeries. Requires 15 class hours and 60 hours of closed lab. Prerequisite: GASC 2020.

3 credits

GASC 2900 GLOBAL CUISINE

Analysis of regional gastronomies and their culinary philosophies in the kitchens of the greatest influence in the world. Includes the techniques, ingredients and the most popular recipes internationally. Emphasis in the preparations and the trends of each region studied. Requires 15 hours of lecture and 60 hours of practical laboratory in the kitchen under the supervision of the professor. Prerequisite: GASC 2020.

3 credits

GASC 2910 PROFESSIONAL PRACTICUM

Learning experience by means of the application of the skills and knowledge of culinary arts and gastronomical sciences in a practice center approved by the faculty. Requires 240 hours of supervised practice in the gastronomy industry, presentation of evaluations (employer and professor) and attendance in the practice center. Prerequisite: All major courses; Corequisites: GASC 2500, 2800, 2900, FSMT 2104.

4 credits

Courses in Design (DSGN)

DSGN 1010 FOUNDATIONS OF DESIGN

Introduction of the basic concepts of design and their practical application. Analysis of organizational systems and composition by means of experimentation in bidimensional and three-dimensional objects. Emphasis on the elaboration of projects of basic complexity. Requires 75 hours of lecture-lab.

5 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 45 hours of lecture-lab.

3 credits

DSGN 2000 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 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 2010 EPHEMERAL CONSTRUCTION

Planning and construction of elements of design with ephemeral or temporary character. Emphasis on the study of the materials and the constructive methods with a focus on the economy of resources. Requires 45 hours of lecture-lab.

3 credits

DSGN 2020 BIDIMENSIONAL DESIGN

Problem solving of the bidimensional design. Analysis of studies of precedents and topics related to graphical communication, the production of objects and space design. Emphasis on the elaboration of projects of basic complexity. Requires 75 hours of lecture-lab. Prerequisites: DSGN 1010, 1040.

5 credits

DSGN 2030 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 60 hours of lecture-lab.

4 credits

DSGN 2033 THREE-DIMENSIONAL DESIGN I

Problem solving of basic three-dimensional design. Analysis of the design of contemporary information and objects that explore techniques and methods used to articulate the components of a project. Emphasis on the elaboration of projects of intermediate complexity. Requires 75 hours of lecture-lab. Prerequisite: DSGN 2020.

5 credits

DSGN 2034 THREE-DIMENSIONAL DESIGN II

Problem solving of the intermediate three-dimensional design. Analysis of design of space from a perspective that considers positions based on the technology, materials, organization and the integration of these in a space context. Emphasis on the elaboration of projects of intermediate-advanced complexity. Requires 75 hours of lecture-lab. Prerequisites: DSGN 2030, 2033.

5 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-lab.

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 45 hours lecture-lab.

3 credits

DSGN 3200 PRINCIPLE OF FUNCTIONAL MATERIALS

Theoretical and practical studies of diverse materials like stone, wood, metal, clay, glass and fabrics. Application of the fundamentals of composition that emphasize the relation between form and function. Emphasis on the solution of problems relevant to contemporary design. Requires 45 hours of lecture-lab.

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. Use of 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 45 hours of lecture-lab.

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 45 hours of lecture-lab.

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 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 60 hours of lecture-lab.

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 60 hours of lecture-lab.

4 credits

DSGN 4921 PROJECT IN DESIGN I

Problem solving of advanced design. Analysis of the procedure to follow in design research. Identification of a research topic in the field of design. Use of the tools for the research and definition of the parameters, the objectives and the selection of the methodology, which will culminate in the preparation of a design project. Emphasis on the elaboration of projects of advanced complexity. Requires 75 hours of lecture-lab. Prerequisite: DSGN 2034.

5 credits

DSGN 4922 PROJECT IN DESIGN II

Problem solving of advanced design. Analysis, design, development, construction and presentation of a design project. Includes planning, the references, development, creation, presentation and the documentation of the design project. Emphasis on the elaboration of projects of advanced complexity. Requires 75 hours of lecture-lab. Prerequisite: DSGN 4921

5 credits

Courses in Design and Development of Videogames (GAME)

GAME 1100 DESIGN OF VIDEOGAMES

Study of the different processes in the development of videogames 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 VIDEOGAMES

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 videogames 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 VIDEOGAME PROGRAMMING I

Discussion of the basic techniques used in the development of a videogame. 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 videogames 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 VIDEOGAME PROGRAMMING II

Analysis and application of several essential advanced concepts in the construction of a videogame, 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 VIDEOGAME 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 VIDEOGAMES 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 VIDEOGAMES 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: COMP 2502, GAME 3201.

3 credits

GAME 3203 GRAPHICS FOR VIDEOGAMES 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 VIDEOGAMES

Review of the diverse areas of the new field of artificial intelligence with emphasis on the application of artificial intelligence to the development of videogames. 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 VIDEOGAME

Practice of all knowledge acquired throughout the program. "Production of a videogame" 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 VIDEOGAMES

Discussion of emerging topics related to videogames. Includes innovating technologies, new algorithms and shifts of paradigms in areas directly or indirectly related to videogames, such as: the area of artificial intelligence, graphs, computerized vision, robotics, and the videogames industry. Requires 45 hours of lecture. Prerequisites: COMP 3400, GAME 1100, 3103, 3203.

3 credits

GAME 4400 VIDEOGAME DEVELOPMENT FOR CONSOLES AND PORTABLE EQUIPMENT

Analysis of the architectures of different equipment and consoles, their capacities and their limitations. Development of videogames 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 VIDEOGAMES INDUSTRY

Experience in a real work environment related to the design of videogames 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 Digital Graphic Design and Multimedia (DGDM)

DGDM 1101 HISTORY OF GRAPHIC DESIGN

Study of the history of graphic design from the origins of humanity to the digital era. Discussion of the appearance of visual language through pictograms and ideograms, as well as the development of the first alphabets.

3 credits

DGDM 1103 FOUNDATIONS OF GRAPHIC DESIGN

Discussion of the fundamental guides of esthetic order in graphic composition. Analysis of the elements, principles, resources and the other general rules of the arts that govern graphic design. Development of practical skills in graphic composition by using natural resources and commercially elaborated material.

3 credits

DGDM 1104 ANALYSIS OF GRAPHIC MEDIA

Analysis of the influence of graphic media in the Puerto Rican society and in other cultures, especially through the phenomenon of globalization and multiculturalism. Discussion of language levels, communication codes and the linguistic codes of different graphic works produced socially and commercially to identify discursive practices and ideological dimensions.

3 credits

DGDM 1201 DIGITAL PHOTOGRAPHY APPLIED TO GRAPHIC DESIGN I

Introduction to the technical aspects of digital photography applied to graphic design. Study of the effect of natural light, the effect of artificial light and the instruments, which are essential to obtain the appropriate and quality illumination in both inside and outside scenes. Identification of the essential things that should be taken into account when taking a picture to be used in a traditional graphic medium or digital graphic medium. Practice in photographic exercises that culminate in the production of a digital photographic portfolio. Requires 30 hours of lecture and 30 hours of closed lab.

3 credits

DGDM 1202 DIGITAL PHOTOGRAPHY APPLIED TO GRAPHIC DESIGN II

Practice in the handling of professional digital cameras, the optical photometry, digital sensors and indoor and outdoor illumination. Selection and use of filters, the objectives and other equipment and tools to be used in different scenes related to publicity, fashion and other photographic fields. Preparation of professional projects using advanced digital techniques of photographic edition with current software in the field of graphic design. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: DGDM 1201.

3 credits

DGDM 2201 DIGITAL GRAPHIC DESIGN I

Development of the basic skills in the use of the graphic design software existing on the market. Study of photography and typography as essential elements of graphic communication. Preparation of vector graphics, photographic alterations and restoration of old or damaged images to be used in different graphic publication media. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: DGDM 1103.

3 credits

DGDM 2202 DIGITAL GRAPHIC DESIGN II

Development of the most advanced skills in the use of the graphic design software existing on the market. Development of digital language through design, composition and production of elaborated digital graphic works. Performance of digital treatment of images through edition and optimization of images for publishing design, Web design or multimedia. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: DGDM 2201.

3 credits

DGDM 2203 DESIGN AND GRAPHIC AND DIGITAL TYPESETTING

Discussion of typography as one of the main elements of graphic communication and its impact on graphic design. Review of the different typesetting families and styles, as well as other graphic symbols, such as the ornamental numbers and elements. Application of the elements of typesetting structure in graphic communication. Requires 45 hours of lecture-lab. Prerequisites: DGDM 1104, 2201.

3 credits

DGDM 2204 INTRODUCTION TO MULTIMEDIA DESIGN

Planning, design and implementation of simple projects of multimedia and Internet. Includes Web pages that take into consideration the different elements that permit their functionality, navigability and interactivity. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: DGDM 2201.

3 credits

DGDM 2205 SEMIOTICS AND GRAPHIC COMMUNICATION

Discussion of the theoretical explanations of semiotics and the importance of this in graphic communication. Study of the different historical currents of semiotics and of the visual and linguistic signs in visual organizations. Analysis of the correlations of iconic semiotics, symbolic semiotics or of graphic discourse in the process of production and reproduction of social knowledge. Discussion of the fundamental methodologies of graphic discourse in the diverse cultural contexts in which they take place. Prerequisite: DGDM 2203.

3 credits

DGDM 2206 WRITING FOR THE DIGITAL FORMAT AND VIDEO PRODUCTION

Application of the theoretical and practical foundations of the writing of librettos from a communication system that integrates both visual and sound elements. Creation of stories and characters to elaborate a libretto or storyboard that facilitates the production of multimedia videos. Requires 45 hours of lecture-lab. Prerequisite: DGDM 2203.

3 credits

DGDM 3014 CORPORATE IDENTITY DESIGN AND VISUAL IDENTITY

Discussion and application of the basic concepts in the identity and image of some corporation, or public or private institution. Analysis and design of the graphic and visual elements that identify the company or institution. Requires 45 hours of lecture-lab. Prerequisites: DGDM 1202, 2203.

3 credits

DGDM 3015 PACKAGING DESIGN AND DISPLAYS

Esthetic and functional design of packages and displays for promotion, product marketing and graphic services. Study of the versatility of the formats, sizes, and the digital and traditional media most appropriate. Analysis of the visual elements of graphic design. Requires 45 hours of lecture-lab. Prerequisites: DGDM 1202, 2203.

3 credits

DGDM 3016 PRINCIPLES OF ANIMATION

Application of the foundations and methodologies of the molding of bi-dimensional objects. Analysis of the artistic principles, of animation expression and the performance of bi-dimensional animation practice with current software on the market for new digital graphic media. Study of the storyboarding art. Discussion of the basic principles of illumination and rendering through molding and animation of simple objects. Requires 30 hours of lecture and 30 hours of closed laboratory. Prerequisite: DGDM 2204.

3 credits

DGDM 3021 DESIGN AND MULTIMEDIA PRODUCTION I

Analysis of the current technologies, instruments and methodologies in the field of the design and production of multimedia. Design, development and production of interactive, digital, multimedia projects that incorporate dynamic elements to texts, graphics and images. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: DGDM 2204, 3016.

3 credits

DGDM 3022 DESIGN AND MULTIMEDIA PRODUCTION II

Analysis of the current technologies, instruments and methodologies in the field of design and the production of multimedia. Design, production and edition of professional digital projects of interactive multimedia that include special effects and animation in videogames, advertising videos and film shorts, among others. Integration of the current technologies on the market. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: DGDM 3021.

3 credits

DGDM 4003 ETHICAL AND LEGAL PRINCIPLES OF GRAPHIC COMMUNICATION

Analysis of the ethical and legal concepts and principles that apply to graphic communication worldwide. Review of the applicable state and federal jurisprudence.

3 credits

DGDM 4004 ADMINISTRATION AND MARKETING OF GRAPHIC MEDIA

Analysis of real experiences in the creation of strategies for the development, establishment and consolidation of a graphic company. Emphasis on research, quality, productivity, and the logistics of the business efforts in the internal and external market. Planning and development of a real proposal for the creation of a digital graphic company within a local and global context.

3 credits

DGDM 4005 PROFESSIONAL SEMINAR

Review of the professional and ethical values to achieve the integral formation the future graphic communicator. Analysis of the skills required of the future professional of graphic media to preserve an effective communication between cohorts, supervisor and clients. Discussion of possible work scenarios with ethical and labor conflicts that could occur in these contexts. This course will be taken the academic term prior to the practice.

3 credits

DGDM 4006 DESIGN AND PRODUCTION OF THE DIGITAL PROFESSIONAL PORTFOLIO

Preparation of a digital professional portfolio that makes use of current software in the graphic world. Demonstration of the capacities and professional competencies in the use of different formats of digital portfolios and of the current software on the market to make the portfolio. Requires 45 hours of lecture lab. Co-requisite: DGDM 4910. Prerequisite: DGDM 4005.

3 credits

DGDM 4007 ADVERTISING CAMPAIGN SEMINAR

Design of an advertising campaign as well as that of theoretical models that allow the development of market research and the aspects of psychoanalysis, and the semiological and interdisciplinary aspect that constitute the contemporary culture of modern publicity.

3 credits

DGDM 4013 PUBLISHING DESIGN

Review of the art of model-making and the creative composition of publications, such as catalogs, magazines, newspapers and books that make use of current software on the market. Study of the trends, publishing styles and approaches for each format. Analysis and selection of traditional and digital printing methods appropriate for each medium and format. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: DGDM 1202, 2203.

3 credits

DGDM 4014 ANIMATION AND THREE-DIMENSIONAL GRAPH (3D)

Analysis of the techniques of 3D modeling and the texturizing of objects using advanced software to create complex animations. Discussion of the application of textures to the three-dimensional models, the creation and edition of materials, the channels of maps, the most complex techniques of illumination, the applications of light, the shades, the use of color and how these affect three-dimensional objects and the process of rendering of three-dimensional animations. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: DGDM 3016.

3 credits

DGDM 4910 PRACTICE

Supervised professional practice in a real work scenario. Design and production of professional quality materials, as well as the creative solutions to inherent problems to the field of graphic communication. Requires a minimum of 180 hours of practice under the supervision of a specialist in the area and be approved with a minimum of B. Prerequisites: 1) have approved the major courses except DGDM 4006 and 4007. 2) Authorization of the Director of the Department or the Coordinator.

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 INTEGRATION OF TECHNOLOGY IN EDUCATION

Integration of technology in the educational process through administration of materials and electronic programs. Emphasis on search skills, identification and use of reliable electronic sources of intelligence through different means from the Web. 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 the course. Prerequisites: EDUC 1080, 2022 and 2031.

2 credits

EDUC 2905 NATURE AND NEEDS OF STUDENTS WITH INTELLECTUAL DISABILITY AND MENTAL DISORDERS

Discussion of intellectual disability and mental disorders. 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 NEEDS 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, Montessori, 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 CURRICULUM AND MATERIALS FOR DISABLED STUDENTS

Analysis of basic curricular principles of special education and their application to Puerto Rico. Evaluation of strategies for curricular adaptation for students with disabilities. Includes the knowledge of the appropriate teaching practices and the factors that promote education in natural and inclusive environments. Emphasis on the integration of knowledge, critical thought and the solution of problems within the curricular content. Students will create and adapt curricular material and the use of technology to meet the individual and developmental needs of students with disabilities in small groups, as well as 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 3465 SEMINAR: STUDENTS WITH DISABILITIES AND THEIR FAMILIES

Evaluation of the needs of students with disabilities and their families with emphasis on the transdisciplinary model. Development of the skills necessary to work with families that have students with disabilities. Study of the models of services programs available in Puerto Rico for students with disabilities and their families. Includes the study of the current laws and their educational implications. Requires 10 hours of supervised experience.

3 credits

EDUC 3467 TECHNIQUES AND ASSESSMENT INSTRUMENTS FOR STUDENTS WITH DISABILITIES

Analysis of technical and instruments used to evaluate the development of infants and of pre-school children until adults who have disabilities. Students will have the opportunity to analyze existing instruments, and the construction of new instruments and have the experience of assessing a student from 0 to 21 years of age.

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 2909.

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 3581.

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 4000 MANAGING THE CONDUCT OF STUDENTS WITH AUTISM

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 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 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, except for EDUC 4551 and 4552, 2) have a minimum general point average of 3.00, 3) have a minimum point average of 3.00 in the Major, and 4) 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. The approval of this course is a requirement for obtaining authorization to take the "Prueba de Competencias Fundamentales y Competencias de la Comunicación (PCMAS)". 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. The approval of this course is a requirement for obtaining authorization to take the "Prueba de Competencias Fundamentales y Competencias de la Comunicación (PCMAS)". 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 ONLINE LEARNING

Application of learning principles in the design and development of online learning experiences with emphasis on constructivist approaches. Study of the historical and theoretical foundations of online learning. Discussion of subjects related to publication rights and public regulations and policy regarding the design and implementation of online learning. Discussion of the scope of different online learning technologies on learning. Study of cultural impact on the design and implementation of online 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 Electronic Engineering Technology and Electrical Power (ELEC)

ELEC 1120 INDUSTRIAL SAFETY

Study of the norms related to the Occupational Safety and Health Act (OSHA) in work areas: electrical risks, risks of falls, mechanical platforms, elevators, dangerous materials, protective equipment for the personnel, protection against fires, spaces, air equipment and compressed gas, work with machines and protectors of them, electrical tools manuals and, violence in the work place and first aid.

3 credits

ELEC 2121 LOGIC CIRCUITS LABORATORY I

Analysis and carrying out of laboratory practices with basic gates. Determine experimentally the different simplification methods. Development of skills with the measuring instruments used in digital circuits. Interpretation of diagrams to implement circuits with basic and different IC gates, such as adding machines, comparators, multiplexer and demultiplexer. Experimental verification of the concepts and foundations of the rules of Boole and DeMorgan laws. Requires 45 hours of lab. Prerequisite: GEMA 1200. Corequisite: ELEC 2131.

1 credit

ELEC 2131 LOGIC CIRCUITS I

Analysis of combinational and sequential digital circuits from mathematical logic to physical implementation. Identification of truth tables for the different gates, methods for analysis of logic circuits such as Boolean Algebra, Karnaugh Maps, Quine Method, and others. Understanding of the electronic properties and characteristics of the family of integrated logic circuits in common use, with emphasis on TTL and CMOS. Prerequisite: GEMA 1200.

3 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 1120.

3 credits

ELEC 2170 ELECTRONIC DRAWING

Introduction to computer aided drawing (CAD). Line types. Projections and dimensions. Symbolism used in electronics. Units, nomenclature and codes. Block diagrams. Schematic diagrams. Introduction to programs for simulation of electronic circuits. Introduction to computer aided simulation to instrumentation. Requires 45 hours of lecture-lab.

3 credits

ELEC 2331 ELECTRICAL CIRCUITS LABORATORY I

Analysis and carrying out of laboratory practices on fundamental concepts of electricity and passive devices submitted to direct current. Use of energy sources and instruments to measure electrical variables. Interpretation of diagrams to implement electrical circuits. Experimental verification of the laws and theorems that apply to the solution of the CD electrical circuits. Observation of the transient behavior of the condensers and the coils in CD. Requires 45 hours of lab. Prerequisite: GEMA 1200. Corequisite: ELEC 2341.

1 credit

ELEC 2332 ELECTRICAL CIRCUITS LABORATORY II

Analysis and carrying out of practical on signals of AC voltage. Development of skills in the use of oscilloscope and signal generators. Study of the behavior in frequency of components R, L and C. Interpretation of diagrams to implement electrical circuits. Experimental verification of the laws that apply to the solution of the electrical circuits in CA. Analysis of resonant circuits, passive filters, transformers and three-phase systems. Requires 45 hours of lab. Prerequisites: ELEC 2331, 2341. Corequisite: ELEC 2342.

1 credit

ELEC 2341 ELECTRIC CIRCUITS I

Analysis of the fundamental concepts of electricity and passive devices submitted to direct flow. Study of circuit variables, circuit elements and resistive circuits. Circuit analysis techniques. Interpretation of the meaning of inductance, capacitance and the response of first-order circuits: RL and RC. Prerequisite: GEMA1200.

3 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 2341.

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 2341.

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 2341.

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

ELEC 2540 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 2910 PRACTICE IN INDUSTRY

Practical experience in industry or government agency where the student will have the opportunity to use the knowledge and skills acquired to solve related problems 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.

4 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 3131 LOGIC CIRCUITS LABORATORY II

Analysis and conduct of laboratory practices on fundamental concepts of the digital electronics. Development of skills with the measuring instruments used in digital circuits. Interpretation of diagrams to implement circuits with flip flop, counter, shift register, memories, A/D and D/A. Experimental verification of

the concepts and foundations that apply to the solution of the digital circuits. Requires 45 hours of lab. Prerequisites: ELEC 2121, 2131. Corequisite: ELEC 3132.

1 credit

ELEC 3132 LOGIC CIRCUITS II

Analysis of the different families of bipolar and single-pole logic circuits. Description of the methods of interphase between them, large scale integration circuits and their application. Identification of the arrangements of programmable logic, memories, analog-digital and digital-analog conversion Implementation of integrated digital circuits of specific application (ASIC/ASDIC). Prerequisite: ELEC 2131.

3 credits

ELEC 3171 ELECTRONIC CIRCUITS LABORATORY I

Analysis and conduct of laboratory practices on fundamental concepts of electronics and solid state devices. Development of skills with the measuring instruments used in circuits with diodes and transistors BJT. Interpretation of diagrams to implement electronic circuits. Experimental verification of the concepts and foundations that apply to the solution of electronic circuits. Requires 45 hours of lab. Prerequisite: ELEC 2331. Corequisite: ELEC 3181.

1 credit

ELEC 3172 ELECTRONIC CIRCUITS LABORATORY II

Analysis and conduct of laboratory practices on fundamental concepts of electronics and solid state devices. Development of skills with the measuring instruments used in circuits with transistors FET and integrated circuits. Interpretation of diagrams to implement electronic circuits. Experimental verification of the concepts and foundations that apply to the solution of electronic circuits. Requires 45 hours of lab. Prerequisites: ELEC 2332, 3171. Corequisite: ELEC 3182.

1 credit

ELEC 3181 ELECTRONIC CIRCUITS I

Analysis on fundamental concepts of electronics and solid state devices; diodes, semiconductors, bipolar transistors, polarization and stability of basic transistorized circuits. Design of amplifiers; rectifiers and filters. Prerequisite: ELEC 2341.

3 credits

ELEC 3182 ELECTRONIC CIRCUITS II

Analysis of small and large signal circuits, and field effect transistors (FET). Design of low, high and medium frequency amplifiers. Interpretation of the linear integrated circuits, feedback amplifiers and filters. Prerequisite: ELEC 3181.

3 credits

ELEC 3421 ELECTRICAL SYSTEMS LABORATORY

Verification by means of the practice the basic principles and the application of transformers, electromechanical relays, electric motors and other components of electrical systems. Requires 45 hours of lab. Prerequisite: ELEC 2332. Corequisite: ELEC 3431.

1 credit

ELEC 3431 ELECTRICAL SYSTEMS

Application of the principles of electrical security. Introduction to electrical equipment and its properties. Analysis of transformers, power conditioning, and induction motors. Application of circuit analysis principles to calculate real, reactive and apparent power in both single-phase and tri-phase circuits. Study of motor control devices, programmable logic controllers; as well as input and output devices of PLC's. Introduction to the use of communications in the control of power systems. Prerequisite: ELEC 2342.

3 credits

ELEC 3470 INDUSTRIAL ELECTRONICS LABORATORY

Theoretical and practical study of the electronic circuits, the procedures and processes used in industry. Foundations of the theory and control loops, applications of integrated circuits, detection elements for

measuring flow, temperature and scrolling. Use and programming of programmable controllers and application of operational amplifiers. Requires 45 hours of lab. Prerequisites: ELEC 2342, 3171. Corequisite: ELEC 3480.

1 credit

ELEC 3480 INDUSTRIAL ELECTRONICS

Analysis of the electromechanical relays, transistors and logical gates in the construction of logical circuits for industrial use. Description of the operation theory and applications of the most common thyristors, the basic principles of operational amplifiers and the invertors. Study of the basic elements of motor speed control and of the programmable logic controllers (PLC). Prerequisites: ELEC 2342, 3181.

3 credits

ELEC 3660 SOLAR ENERGY LABORATORY

Analysis and conduct of laboratory practices with the devices that form a photovoltaic system (PV). Analysis of the behavior of PV cells under different levels of solar irradiation. Analysis of shade in the installation location. Operation of batteries, invertors and load controllers. Interconnection of the elements of a PV system. Study of the regulations and the connection codes, of the security norms and protection devices. Interconnection with the network supplying electrical energy. Requires 45 hours of lab. Prerequisites: ELEC 2332, 3171. Corequisite: ELEC 3670.

1 credit

ELEC 3670 SOLAR ENERGY

Analysis of the characteristics of solar cells. Study of the general concepts on photovoltaic systems and the components of a solar system for energy generation. Development and applications of photovoltaic systems. Evaluation of the installation site. Analysis of shade. Electrical and mechanical Integration. Discussion of regulations for the installation of a solar system. Prerequisites: ELEC 2342, 3181.

3 credits

ELEC 4210 COMMUNICATIONS LABORATORY

Study of low pass, high pass and band pass filter circuits. Construction of circuits to modulate amplitude, oscillating and frequency multipliers. Differentiation between frequency mixers, diode detectors and others. Requires 45 hours of lab. Prerequisite: ELEC 3172. Corequisite: ELEC 4220.

1 credit

ELEC 4220 COMMUNICATIONS

Analysis of the fundamental concepts of analogous nature communications, emphasizing the modulation, transmission and reception of signals A.M., FM, and the difference between them. Analysis of resonant circuits, of radio frequency (RF) circuits, noise in components and communications systems, and the effects of operating a high frequency circuit. Prerequisite: ELEC 3182.

3 credits

ELEC 4370 INSTRUMENTATION AND CONTROL SYSTEMS LABORATORY

Construction and analysis of circuits using basic control elements. Verification of the theoretical concepts of control systems by means of practical circuits. Development of instrumentation circuits using operational amplifiers. Requires 45 hours of lab. Prerequisite: ELEC 3172. Corequisite: ELEC 4380.

1 credit

ELEC 4380 CONTROL SYSTEMS AND INSTRUMENTATION

Introduction to the basic concepts of a control system: sensors and their application, feedback theory and transition functions. Comparison of proportional control: derivational and integral. Evaluation of the transducers used in measure and control electronic systems. Study of the mechanical, electromechanical and electronic components of the basic control system. Prerequisites: ELEC 3182, 3480.

3 credits

ELEC 4420 PLC LABORATORY

Introduction to the Programmable Logic Controllers (PLC). General characteristics of the PLC. Description of the CPU. Identification of the functionality of the input/output system. Organization of memory. Programming of control instructions. Instructions for data manipulation, timers, meters, sequencers and mathematical instructions. Development of programs from ladder diagrams. Requires 45 hours of lab. Prerequisites: ELEC 2121, 2331. Corequisite: ELEC 4430.

1 credit

ELEC 4430 PROGRAMMABLE LOGIC CONTROLLERS

Introduction to Programmable Logic Controllers (PLC). General Characteristics of the PLC. Description of the CPU. Identification of the functionality of the input/output system (Modules of I/O) and the organization of memory. Implementation of control instructions programming, and instructions for data manipulation, for timers, for counters, for sequencers, and for mathematical calculations. Development of programs from Ladder diagrams. Prerequisites: ELEC 2131, 2341.

3 credits

ELEC 4460 ROBOTICS AND AUTOMATION LABORATORY

Analysis of computer controlled machines. Work in aspects of movement control, productivity and security. Emphasis on the simulation of robots in movement and their efficiency in manufacturing. Projects of robotics applied in real time. Practical experience in different activities, such as: sensorial devices, control systems, actuators and effectors. Understanding of the operation and the programming with respect to manipulators. Requires 45 hours of lab. Prerequisite: ELEC 3171. Corequisite: ELEC 4470.

1 credit

ELEC 4470 ROBOTICS AND AUTOMATION

Foundations of industrial robotics, manipulators, actuators, endeffectors and controller. Classification of industrial robots and the technology of external and internal sensors. Modeling and techniques of kinematic and dynamic control of industrial robots. Systems of computerized vision. Intelligent Robots, and robot languages. Applications of robots in industrial processes of manufacturing, sequential process control and automation of continuous and discrete processes. Development of programs for automation, CAD, CAM, CIM, simulators and introduction to concepts and techniques of automation. Prerequisite: ELEC 3181.

3 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. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ENGR 1200 INTRODUCTION TO SUSTAINABLE ENGINEERING

Description of the patterns and processes in the natural world, the human impacts on the Earth, the main environmental problems and the supply of conventional and sustainable energy. Fundamental understanding of sustainability principles, life cycle analysis, tools, design principles and sustainable engineering applications. Case study of sustainable engineering. Requirement: ENGR 1100.

3 credits

ENGR 2130 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-lab. Prerequisite: MATH 1500.

3 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 discrete 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: MATH 2251.

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 3365 FUNDAMENTALS OF ELECTRICAL ENGINEERING

Study and analysis of electrical circuits. It includes elements of circuits, elementary theory of networks, differential equations of transient circuits, circuit dynamics and permanent sinusoidal response of circuits, three-phase circuits and power. Analysis of electromechanical systems. It includes theory of magnetic circuits, transformers, electrical machines and electromechanical energy conversion. Requirements: PHYS 3312 and MATH 3400.

3 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 Kirchoff. 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 30 hours of lab. Corequisite: 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 30 hours of lab. Prerequisites: ELEN 3301 and 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 30 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 30 hours of lab. Prerequisites: ELEN 3311, 3302.

4 credits

ELEN 3320 LOGIC CIRCUITS

Study of Boolean algebra theorems and postulates. Simplification of logic gates using 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 30 hours of lab. Corequisite: ELEN 3301.

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 3360 APPLIED ELECTROMAGNETICS

Study of the behavior of electric and magnetic fields and the interrelation between them under static and dynamic cases, according to Maxwell's laws. Analysis of the electrical and magnetic properties in materials. Analysis of the propagation of electromagnetic waves in transmission lines; and the propagation of electromagnetic waves in conductive and dielectric media with and without losses. It includes the study of the transmission, reflection and refraction of electromagnetic waves for normal and oblique incidence. Study of the antennas and their characteristics. Examination of the Friis equation for satellite communication systems and radars. Requirements: ELEN 3302 and MATH 3250.

4 credits

ELEN 3430 SIGNALS AND SYSTEMS

Study and classification of signals and systems. Analysis of systems in continuous or discrete time domain. Analysis of systems in the discrete 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-lab. Prerequisite: ELEN 3302.

3 credits

ELEN 4020 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-lab. Prerequisites: ELEN 3320 and ENGR 2120 or COEN 2210.

3 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 30 hours of lab. Prerequisite: ELEN 3312.

4 credits

ELEN 4351 POWER SYSTEMS ANALYSIS I

Analysis of power systems in a stationary condition. Study and modeling of the transmission lines and three-phase power systems and their behavior in the stationary state. Analysis of the flow of complex power and its effects in the power factor. Study and modeling of the power transformer and its behavior in the stationary state. Requires 45 hours of lecture and 30 hours of lab. Prerequisite: ELEN 3302.

4 credits

ELEN 4352 POWER SYSTEMS ANALYSIS II

Calculation of the power flow in the electrical system networks. Analysis of symmetrical and asymmetric failures using sequence networks. Review of the economic operation and stability, and the protection systems of the power systems. Study of synchronous generator. Use of simulation tools to model the flow of power and faults in the power systems. Requires 60 hours of lecture-lab. Prerequisite: ELEN 4351.

4 credits

ELEN 4353 ELECTRIC MACHINES AND DRIVES

Study of the operation of Electric Drives and their use to control speed and position in different applications. Analysis of magnetic circuits applied to electrical machines. Study and analysis of single-phase and three-phase DC and AC machines. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4351.

4 credits

ELEN 4375 ELECTRICAL SYSTEMS DESIGN FOR BUILDINGS

Electrical systems analysis and design for buildings, with emphasis on the use of the National Electrical Code in the design process. Study of the load characteristic, transformers, voltage drop calculations, and equipment and systems protection. Design of lighting systems for buildings. Design of computer-assisted electrical and lighting systems. Requires time in an open lab. Prerequisite: ELEN 4351.

3 credits

ELEN 4376 INDUSTRIAL POWER SYSTEMS DESIGN

Design of industrial systems of power with emphasis on the aspects of planning and protection, the system characteristics and its components and the installation systems. Analysis and design of computer-assisted power systems. Requires time in an open lab. Prerequisite: ELEN 4353.

3 credits

ELEN 4378 DISTRIBUTED GENERATION

Analysis of the characteristics of the technology used as a source of distributed generation and its integration to the electrical power network. Analysis and design of computer-assisted systems. Requires time in an open laboratory. Prerequisite: ELEN 4351.

3 credits

ELEN 4410 DIGITAL SYSTEMS DESIGN

Design of logic circuits using integrated circuit components. Applications of combinational and sequential logic circuits. Analysis of interface systems between different families of analog-to-digital converters and vice versa. Design of logic circuits using computers. Requires 45 hours of lecture and 30 hours of lab. Prerequisites: ELEN 3320 and ENGR 2130, or COEN 2210.

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 Elliptic 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 30 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 30 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 root loci. 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 30 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 30 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 30 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 30 hours of lab. Prerequisite: ELEN 4509.

4 credits

ELEN 4535 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-lab. Prerequisite: ELEN 4509.

3 credits

ELEN 4537 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. Prerequisite: ELEN 4509.

3 credits

ELEN 4538 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-lab. Prerequisite: ELEN 4509.

3 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 30 hours of lab. Prerequisite: ELEN 3430.

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 30 hours of lab. Prerequisites: ELEN 3312 and 3360.

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 30 hours of lab. Prerequisite: ELEN 4611.

4 credits

ELEN 4614 ADVANCED 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 30 hours of lab. Prerequisite: ELEN 4610.

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 30 hours of lab. Prerequisite: ELEN 4610.

4 credits

ELEN 4623 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. Prerequisites: ELEN 3360.

3 credits

ELEN 4625 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-lab. Prerequisite: ELEN 4610.

3 credits

ELEN 4626 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-lab. Prerequisites: ELEN 3352, 4610.

3 credits

ELEN 4627 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 packet 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.

3 credits

ELEN 4810 ELECTRICAL AND COMPUTERS ENGINEERING PROJECT DESIGN

Major experience design in electrical or computer engineering in which the student will integrate the knowledge acquired in their study program. Development of multidisciplinary teamwork skills, in organization and in effective communication. Evaluation and implementation or simulation of a device, system or product as applicable. Requirements: Be enrolled in your last term of classes and authorization of the department chair.

3 credits

ELEN 4915 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. Prerequisite: approval of the supervisor professor.

3 credits

ELEN 4921 UNDERGRADUATE RESEARCH IN ELECTRICAL ENGINEERING I

Development of a research project in the area of electrical engineering under the supervision of a faculty member. The student will dedicate a minimum of 135 hours of work in the development of this project. Requirement: Approval of the department chair.

3 credits

ELEN 4922 UNDERGRADUATE RESEARCH IN ELECTRICAL ENGINEERING II

Development or continuation of a research project in the area of electrical engineering under the supervision of a faculty member. The student will dedicate a minimum of 135 hours of work in the development of this project. Requirements: ELEN 4921 and the approval of the department chair.

3 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 WRITING

Development of formal writing skills. Emphasis on informative and persuasive 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

Integration of the fundamental concepts of language. Includes phonology, phonetics, morphology, syntax, lexicon and semantics.

3 credits

ENGL 3310 PUBLIC SPEAKING

Development of the skills of public speaking for the preparation and presentation of lectures, information and other activities. Development of the critical analysis of oral speech. Improvement of pronunciation.

3 credits

ENGL 3320 FUNDAMENTAL STRUCTURES OF GRAMMAR

Analysis of the morphology and syntax of English. Application of techniques and methods for the correction of grammar deficiencies. 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 YOUNG ADULTS

Analysis of the literature intended for young adults and of the criteria used for its selection in the teaching of English as a second language and its application to the classroom.

3 credits

ENGL 3410 NORTH AMERICAN VOICES

Analysis of the major North American authors; the evolution of their thoughts and literary styles is studied. Development of writing skills and critical analysis. 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

Analysis of literature written in English by Puerto Ricans. Review of the cultural, social and economic aspects that give origin to individuality as well as to the diversity of their voices. Development of writing skills and critical analysis.

3 credits

ENGL 3440 CHILDREN'S LITERATURE

Analysis of literature intended for children and preadolescents. Criteria used for its selection and its application in the teaching of English as a second language in the classroom.

3 credits

ENGL 3450 ANALYSIS OF GRAPHICAL NOVELS

Development of writing skills and critical thought through the analysis of the techniques, styles, and topics in graphical novels as a literary genre. Prerequisite: ENGL 3350.

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

Interpretative analysis of the techniques, the style and the literary themes by means of a survey of the short story as a literary genre. Development of writing skills and critical analysis. Prerequisite: ENGL 3350.

3 credits

ENGL 3863 THE POETRY

Development of writing skills and critical analysis. Emphasis on the technique and on verbal analysis through the study of poetry as a literary genre. 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 basic skills of translation of Spanish to English and of English to Spanish. Review of the different theories of translation. Use of translated texts to improve communication in English. Prerequisite: GEEN 2313 approved with a minimum grade of C.

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 the novel as a literary genre. Evaluation of outstanding novels written by world recognized authors. Development of writing skills and critical analysis. 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 4500 LANGUAGE AND POWER

Analysis of how language fashions our perception of reality and the nature of reality as we experienced it. Focus on the role of language in the construction of the sociopolitical speeches from an ample range of disciplines including linguistics, communication, philosophy, sociology, anthropology, history, education and ethnic studies, among others. Prerequisite: GEEN 1103 or 1203 or 2313.

3 credits

ENGL 4700 LITERATURE SINCE 1945

Analysis of literature written since the end of World War II, emphasizing its literary values from a sociological and philosophical perspective. Development of writing skills and critical analysis. Prerequisite: ENGL 3350.

3 credits

ENGL 4800 RESEARCH IN ENGLISH

Preparation of a research project. Selection, organization, presentation and documentation of information available through printed and electronic media. Prerequisite: 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

Study of the basic principles on entrepreneurial thought. Identification of opportunities. Formation and acquisition of companies.

3 credits

ENTR 2212 SOCIAL ENTREPRENEURISM

Study of the trends in entrepreneurship 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 ENTREPRENEURIAL AND MANAGERIAL STRATEGIES

Evaluation of the entrepreneurial and managerial strategies. Emphasis on the analysis of the strategies through the study of a company. Prerequisites: ENTR 2200, MKTG 1210.

3 credits

ENTR 3910 FAMILY BUSINESSES

Study of family businesses and their importance in the economy of Puerto Rico and at the world-wide level. Analysis of the strengths and the weaknesses of family businesses. Discussion of the challenges that face these businesses regarding business strategies. Prerequisite: ENTR 3900.

3 credits

ENTR 4400 DESIGN AND DEVELOPMENT OF A BUSINESS PLAN

Application of entrepreneurial and managerial principles to the design and development of a Business Plan. Prerequisites: ENTR 3900, ACCT 1162.

3 credits

ENTR 4910 ENTREPRENEURIAL 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 4930 ENTREPRENEURIAL OR MANAGERIAL PROJECT

Integration of knowledge and entrepreneurial or managerial skills through one of the following special projects under the supervision of a professor: the implementation of the Business Plan developed by the student in course ENTR 4400 *Design and Development of a Business Plan* or the carrying out of a computerized enterprise simulation. Prerequisite: ENTR 4400.

Courses in Environmental Management (EVMA)

EVMA 1110 INTRODUCTION TO ENVIRONMENTAL MANAGEMENT

Introduction to the study of environmental management sciences with emphasis on the managerial and operational aspects of the use of environmental resources with a sustainable perspective. Different philosophical approaches to environmental services will be contrasted. Requires field experiences and 45 hours of lecture.

3 credits

EVMA 3501 ENVIRONMENTAL IMPACT: TECHNOLOGY AND ASSESSMENT

Study and discussion of the principles and elements of technology used for environmental analysis. Application of these technologies for the conservation of the environment and the natural resources. Emphasis on the environmental problems related to sources of energy, water provision, administration of wastes and pollution control. Prerequisites: CHEM 3015, EVSC 1110, BIOL 2153.

3 credits

EVMA 397 _SPECIAL TOPICS

Analysis and discussion of different special topics on environmental management with emphasis on the discussion of cases.

3 credits

EVMA 4211 ENVIRONMENTAL POLLUTION I

Analysis of the sources of biotic or abiotic contamination with their respective measures of control. Includes the evaluation of the different assessment techniques, the analysis and the design of measures for pollution control in the air, water and soil. Prerequisites: EVMA 3501, MATH 2251, BIOL 3105 and EVSC 3713.

3 credits

EVMA 4212 ENVIRONMENTAL POLLUTION II

Analysis of the sources of biotic or abiotic pollution and their effects on public health. Discussion of the effect of the transmission and growth of the different pathogens in the air, the water and the soil, on health. Study of the different routes of manifestation, the curves of dose-response, lethal dose and risk factors. Prerequisites: EVMA 4211, BIOL 2103 and 2104 and EVSC 2210.

3 crédits

EVMA 4505 ENVIRONMENTAL MANAGEMENT STRATEGIES

Identification and systematic evaluation of the potential effects of proposed projects, programs or policies on the environment. Emphasis on the development of management plans, in which possible environmental damages can be predicted and mitigated. Prerequisite: EVMA 4211.

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 or EVMA 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.

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

Analysis of the generation, handling, disposition and treatment of solid, dangerous and toxic wastes.. Explanation of their origin and characterization. Evaluation of the alternatives for storage, transportation and treatment. Emphasis on their reduction, reuse and recycling. Prerequisites: BIOL 3505 and CHEM 1111.

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 GEOGRAPHIC INFORMATION SYSTEMS IN ENVIRONMENTAL SCIENCES

Application of Geographic Information Systems in environmental studies. Identification of diverse validated sources of geospatial information and their administration. Evaluation of techniques for the analysis of applicable geospatial data related to the environmental impact. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: EVSC 3001.

3 credits

EVSC 4401 RESEARCH IN ENVIRONMENTAL SCIENCES

Application of research designs used in scientific environmental studies. Emphasis on the main methods of evaluation, analysis and control of contamination in the conservation and administration of natural resources. Requires 30 hours of lecture and 45 hours of lab.

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. One hundred sixty (160) 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)

FINA 1000 ETHICS IN FINANCE

Discussion of ethical and moral aspects related to the finance professional. Their importance in the success and integrity of the profession. Emphasis on the most commonly used fraud systems.

3 credits

FINA 2101 CORPORATE FINANCE I

Study of the basic and contemporary principles of corporate financial management 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 performance. Analysis of the structure and cost of capital. Requisites: ACCT 1161 and GEMA 1200.

3 credits

FINA 2102 CORPORATE FINANCE I

Analysis and solution of problems in corporate governance. Emphasis on investments and financing, as well as the dividend policy using the electronic data sheet. Discussion of the acquisition, consolidation, restructuring and liquidation processes. Analysis of cases and integrative problems related to the capital structure. Requisite: FINA 2101.

3 credits

FINA 2150 ELECTRONIC CALCULATION SHEET IN FINANCE

Management and use of digital instruments in financial analysis. Emphasis on the use of electronic spreadsheets for decision-making.

3 credits

FINA 3130 CREDIT RISK MANAGEMENT

Analysis of the identification, measurement, administration and mitigation of credit risk. Discussion of the best practices, the legal aspects and the decision to grant the credit. Emphasis on the development of models through the use of the electronic spreadsheet. Requisites: FINA 2101 and MAEC 2222.

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.

3 credits

FINA 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

FINA 3300 FINANCIAL MARKETS

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 2102 y MAEC 2222.

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 2101.

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 2101.

3 credits

FINA 3700 FUNDAMENTALS 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 3300.

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 3700.

3 credits

FINA 4910 PRACTICUM IN FINANCE

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 135 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

Courses in Fine Arts (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 1102 TECHNICAL FOUNDATIONS AND DRAWING PRACTICE

Analysis of impression methods such as typography, gravure, silkscreen printing and lithography "Off-Set". Practice of ways of graphic reproduction. Requires a total of 30 hours of lecture and 60 hours of lab.

4 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 1102.

3 credits

ARTS 1106 THREE-DIMENSIONSSIONAL DESIGN

Analysis of the elements and principles of art applied to works of art in three dimensions. Consideration of space, volume, and proportion in the creation of works of art. Requires 30 hours of lecture and 30 hours of lab.

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 INTRODUCTION TO POTTERY

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 1010.

3 credits

ARTS 1500 ACTING

Application of suitable acting techniques that permit the extemporization of a character, internally as well as externally. Use of tools to analyze a character beginning with the dramatic text, including its visualization in a scene. Basic techniques for mastery of the body, voice and space.

3 credits

ARTS 1541 DIGITAL PHOTOGRAPHY

Analysis of the theory and practice in handling fixed images. Use of the digital camera for the creation of digital images. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1220.

3 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 1700 APPRECIATION OF THE THEATER

Study of the foundations of the scenic arts and their incorporation in society. Integration of the elements for analysis of the scenic arts, which permits the development of their analysis and appraisal. Theoretical review of the landmarks of theatrical productions from their origins to the present.

3 credits

ARTS 2040 DRAWING

Analysis and execution of concepts and processes of the medium. Development of drawing skills through workshop exercises and assigned projects. Exercises range from the creation of realistic drawings to the creation of works that highlight personal expression. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1104.

3 credits

ARTS 2060 DRAWING IN FLUID MEDIA

Analysis of fluid media for the creation of artworks in drawing. Use of ink, nib, brush, and markers as a medium of drawing. Considerations on surfaces and supports. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 1102 and 2040.

3 credits

ARTS 2061 DRAWING ON ABRASIVE MEDIA

Analysis of the abrasive media for the creation of artworks in drawing. Use of carbon, graphite, crayons, and chalk, among others, as a drawing media. Considerations on surfaces and supports. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 1102 and 2040.

3 credits

ARTS 2062 COLOR DRAWING

Analysis of color theory and the use of color in drawing, with emphasis on techniques, strategies, and materials to develop individual concepts in color drawings. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 1102 and 2040.

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 2111 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 30 hours of lecture and 30 hours of lab.

3 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 1102.

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 1010.

3 credits

ARTS 2250 PAINTING I

Principles of oil painting and acrylic painting. Study of fundamental techniques in the production of pictorial works. Considerations of composition, concept, and style. Requires 30 hours of lecture and 60 hours of lab. Prerequisite: ARTS 2040.

4 credits

ARTS 2252 PAINTING: COLOR INVESTIGATIONS

Analysis of the properties of color in painting media. Study of color, those produced by light, and the ones formed by the combination of pigments. Application of color in painting to study their interaction and their role in pictorial composition. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2250.

3 credits

ARTS 2260 RELIEF SCULPTURE

Discussion of the sculptural form for relief work using various materials and procedures. Analysis of the principles and elements of art applied to three-dimensional works in relief. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 1102 and 1106.

3 credits

ARTS 2300 FUNCTIONAL POTTERY

Application of advanced techniques in the construction of clay objects with the pottery wheel or by hand with emphasis on the technical and functional aspects in ceramics. Basic chemistry of ceramics and study of the diverse firing methods. Study of trends in the design of functional 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 2306 HISTORY OF PHOTOGRAPHY

Analysis of the history of photography and its development as a means of artistic expression. The technical evolution through time will be discussed, as well as its applications and artistic proposals.

3 credits

ARTS 2321 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 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2111.

3 credits

ARTS 2331 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 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2200.

3 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 2401 REPRODUCTION AND PRINTING

Analysis of printing methods such as typography, gravure, silkscreen printing and Off-Set. Practice of ways of graphic reproduction. Requires 30 hours of lecture and 30 hours of lab.

3 credits

ARTS 2403 HISTORY OF ART

Panoramic study of art from prehistory to the realism of the nineteenth century.

3 credits

ARTS 2406 ART MASTERPIECES

Analysis of the fundamentals of visual interpretation and the special aspects of plastic arts character. Development of critical vocabulary for the analysis and interpretation of the work of art through the study of masterpiece examples in history.

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 2521 THREE-DIMENSIONAL DESIGN

Elaboration of digital designs and the application of its formal and conceptual possibilities. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2200.

3 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 2600 BLACK AND WHITE PHOTOGRAPHY

Analysis of the exposure, processing, and enlarging of black and white negatives. Analysis of the appropriate use of black and white photographic film, as well as appropriate paper and equipment for its production. Application of the available techniques in the production of images for visual communication. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1541

3 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 2911 SUPERVISED EXPERIENCE IN GRAPHIC ARTS

Supervised professional experience in companies, organizations or projects related to areas of graphic design. Requires time in graphic design scenarios, in agreement with the professor. Prerequisite: Have approved a minimum of 29 credits of the program's major requirements and course GEIC 1010.

3 credits

ARTS 3004 ARTS OF THE BOOK

Study of the processes related to the creation of artisan books or artist books. Analysis of the structure of the book and its components from ancient times to the technological era. Work with typography, illustration using engravings and binding. Processes will be focused on the design of the book. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 1104 and 2355.

3 credits

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 1102.

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 3212 FIGURE PAINTING

Analysis of the human figure in pictorial representation. Study of the anatomy, the volumetric structure, the relationship between figure and the environment, the composition and blending of color in its psychological and narrative context for the representation of figure in space. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2250.

3 credits

ARTS 3250 WOOD CARVING SCULPTURE

Use of wood carving techniques. Discussion of the peculiarities in making works of art in round and relief. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 1102 and 1106.

3 credits

ARTS 3303 SCULPTURAL CERAMICS

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 3305 FIGURATIVE CERAMICS

Application of ceramics as a means for small and large scale figurative work. Study the potential of plastic as the medium for the creation of figurative sculptural work. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1300.

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 1102.

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 3360 ART AND TECHNOLOGY

Analysis of the relationship between the arts and technology. Historical examination of technology as a determinant of the horizons of possibilities of artistic forms.

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 3407 GENDER, REPRESENTATION AND THE VISUAL ARTS

Analysis of how historians have interpreted the representations of subjects in terms of gender throughout history. Selection of Renaissance works of art at the end of the 19th century. Attention to the historical, conceptual contexts of gender and cultural attitudes towards women, their conditions and experiences in artistic practice.

3 credits

ARTS 3410 LIGHTING

Application of natural and artificial lighting technique used in photography. Use and management of natural and artificial light and related equipment. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1541

3 credits

ARTS 3415 HISTORY OF LATIN AMERICAN AND CARIBBEAN ART

Analysis of the development of plastic arts in Latin America and the Caribbean. Critical look at the development of the arts in the region from the colonial to the contemporary period.

3 credits

ARTS 3420 TYPOGRAPHY DESIGN II

Evaluation of the structures, terminology and methods of typography as a tool for the solution of advanced visual design problems. Emphasis on the language of typography and its effective use in the presentation of works such as logos, corporate images and commercial products, using manual and electronic work. It requires a total of 30 lecture hours and 30 laboratory hours. Requisite: ARTS 2200.

3 credits

ARTS 3450 COLOR PHOTOGRAPHY

Analysis of techniques and management of digital color images in the digital laboratory. The composition and use of the descriptive and aesthetic aspect of color in photography is emphasized. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1541

3 credits

ARTS 3505 PUERTO RICAN THEATER

Study of the Puerto Rican theater production. Review of some representative texts of the Puerto Rican dramatic art and how these have been made into a theatrical production.

3 credits

ARTS 3600 POSTER DESIGN

Evaluation of the various forms of poster design through content and concept research. Creation of appropriate images for the communication of ideas. Manipulation of the typography and combination of the elements of the design in a coherent way. It requires a total of 30 lecture hours and 30 laboratory hours. Requisite: ARTS 2200.

3 credits

ARTS 3660 DOCUMENTARY OR SOCIAL PHOTOGRAPHY

Analysis of the technical and conceptual possibilities of photography to create images illustrating phenomena or social or cultural issues. Study of the techniques, themes, and images that have been impressive in photojournalism and photo-essay. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1541

3 credits

ARTS 3662 FIGURE PHOTOGRAPHY

Application of photographic techniques in design, lighting, and composition to the human figure and portrait images. Study of formal and informal portrait and natural and artificial lighting in both color and black and white. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1541

3 credits

ARTS 4010 ENGRAVING AND THE IMAGE

Analysis of the expressive possibilities of engraving and its techniques in the production of the artwork. Use of the medium to solve conceptual and technical problems. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2355.

3 credits

ARTS 4013 STAGE DIRECTION AND THEATRICAL STAGING

Direction and acting in the theatrical scenario as a research laboratory aimed to delineate, construct, experience and scrutinize the position of the director from the fundamental areas of a theatrical montage and the use of scenic languages.

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

Development of individual concepts in graphic execution. Includes media such as coal, pencil, "crayon", pen, drawing with watercolors, and others. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2040.

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 4251 ASSEMBLAGE

Use of advanced techniques emphasizing the development and improvement of traditional techniques to make assembled sculptural works. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1106.

3 credits

ARTS 4252 EXPERIMENTAL PAINTING

Analysis of the technical and conceptual possibilities of painting to create works of art that reflect personal and artistic concerns. 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 4260 ADVANCED PAINTING

Development of a body of work that presents the culmination of undergraduate work in painting. Attention will be given to the articulation and refinement of the artistic voice in the individual work of art. Critical emphasis comprising both technical and theoretical practice in the paintings made in the course. 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 1102.

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 1102.

3 credits

ARTS 4600 LARGE FORMAT PHOTOGRAPHY

Analysis of the particularities of large-format photography in the principles of exposure, development, and enhancement of images. Use and management of medium and large format cameras and negatives. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1541

3 credits

ARTS 4602 ALTERNATE PROCESSES IN PHOTOGRAPHY

Introduction to non-traditional methods of production and the available processes available for the production of photographic images. Experimental work in the analogous laboratory. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1541

3 credits

ARTS 4860 PACKAGING DESIGN

Evaluation of two-dimensional and three-dimensional shapes for the creation of containers and packaging. Study of packaging design taking into consideration use and production. Construction of three-dimensional prototypes. It requires a total of 30 lecture hours and 30 laboratory hours. Requisite: ARTS 2200.

3 credits

ARTS 4920 GRAPHIC DESIGN FOR DISPLAY AND ENVIRONMENTAL WORKS

Study of graphic design for the preparation of exhibitions and environmental works; the design considerations in the use of form and space; and the design and construction of scale models. It requires a total of 30 lecture hours and 30 laboratory hours. Requisite: ARTS 2200.

3 credits

Courses in Forensic Science, Forensic Informatics and Forensic Biology (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 3300 SECURITY IN INFORMATIC NETWORKS

Study of security network foundations, from the control of physical access to the equipment, and to the protocols for management of emergencies. Analysis of the vulnerabilities, risks, threats, and local or remote attacks against the networks, as well as the use of controls and methods for their protection. Prerequisite: CSIR 2122.

3 credits

FORS 3350 COMPUTATIONAL SECURITY

Discussion of computational security foundations, from authentication and encryption to complete mediation and formal verification. Study of cases where the vulnerabilities, risks, threats, and attacks against the computer systems are discussed, as well as the use of controls and methods of protection for these. Prerequisite: COMP 2315.

3 credits

FORS 3450 DIGITAL EVIDENCE

Study of the different technological tools that can be used as digital evidence in a court. Analysis of cybernetic crimes, the applicable legislation, the handling and the safekeeping of the evidence. Discussion of the strategies recommended for the forensic analysis of computers and other telecommunications equipment. Case study analysis. Prerequisites: FORS 2000 and CSIR 2122.

3 credits

FORS 3970 SPECIAL TOPICS

Analysis and discussion of different specific topics on forensic science with emphasis on the discussion of cases. Prerequisite: FORS 2000.

3 credits

FORS 4100 MULTIMEDIA ANALYSIS

Analysis of the techniques and forensic procedures to collect, manage and preserve the digital evidence in both video and audio. Application of these techniques and procedures by following the standard protocols and multimedia tools. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: FORS 3450.

4 credits

FORS 4400 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. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: BIOL 1116, CHEM 2222.

4 credits

FORS 4421 FORENSIC INVESTIGATION I

Scientific, practical and theoretical 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. Requires 30 hours of lecture and 45 hours of lab. 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 4511 FORENSIC BIOLOGICAL ANALYSIS I

Study of the principles of the forensic serology. Includes the determination of the blood type and its characteristics, tests of human blood ABO and the analysis of blood spots. The characteristics and specific analyses of other corporal fluids are analyzed such as semen, saliva and fecal lees. Emphasis on the collection and preservation of biological material related to a crime. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: BIOL 1102, 2013 and BIIN 3220.

3 credits

FORS 4512 FORENSIC BIOLOGICAL ANALYSIS II

Study of the genetic applications for forensic research. Includes the collection, processing, analysis and interpretation of biological evidence using molecular Biology techniques with emphasis on the forensic analysis of DNA. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: FORS 4511 and BIOL 3010. Co-requisite: BIOL 4604.

3 credits

FORS 4910 FORENSIC PRACTICE

One hundred thirty-five (135) 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 approved a minimum of 18 credits from the major courses and approval of the program director or coordinator.

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 approved a minimum of 18 credits from the major courses and approval of the program director or coordinator.

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 academic affairs.

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 biopsychosocial 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 PHYSICAL EDUCATION AND SPORT TECHNOLOGY

Study of the philosophical, social and historical principles of physical education and athletic therapeutics. Identification of the importance of exercise, physical activity and recreation for the individual and collective well-being, and for populations with special needs.

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 2270 KINESIOLOGY AND FUNCTIONAL ANATOMY

Structural-functional analysis of the bony-muscular and joint system and of and the bio mechanic factors that affect human movement. Includes the study of mechanical kinesiology in exercise and in sport skills. Provides practical experience.

3 credits

HPER 2330 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.

3 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

Study of preventive and therapeutic strategies for the treatment of acute and chronic injuries in athletes or in individuals that practice exercises. Emphasis on the application of bandages, the use of protective equipment and safety measures. Prerequisite: HPER 2270.

3 credits

HPER 3051 THERAPEUTIC MASSAGES

Discussion of the principles that govern the application of different techniques of therapeutic massage for sportsmen and people who do exercises. Emphasis on the variety of practical experiences with typical injuries in sportsmen. Prerequisite: HPER 2270.

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 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 FUNDAMENTAL SKILLS AND TRAINING IN TEAM SPORTS IV

Analysis of the mechanics of the different skills that affect sports. Includes the study of the methods of physical-sport training to develop optimal competitive performance (volleyball, basketball, softball, 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 FUNDAMENTAL SKILLS AND TRAINING IN INDIVIDUAL SPORTS V

Analysis of the mechanics of the different skills that affect sports. Emphasis on the study of the methods of physical-sport training to develop optimal competitive performance (table tennis, field 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 EVALUATION OF INJURIES AND DESIGN OF A PROGRAM OF PHYSICAL REHABILITATION IN INDIVIDUAL AND TEAM SPORTS

Study of the evaluation protocols for athletic traumatism. Emphasis on physical rehabilitation based on the needs of the injured person. Provides practical experience. Study of the evaluative protocols for the athletic traumatism. Emphasis in the physical rehabilitation based on the needs of the injured person. It provides practical experience. Prerequisite: HPER 3050.

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 IN SPORTS, EXERCISE AND PHYSICAL ACTIVITY

Study of the nutritional needs of sportsmen and individuals that practice exercises and physical activities. Includes the programing of nutritious substances in active people and in athletes.

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

Analysis of the administrative processes involved in the organization of exercises programs and sport activities. Includes the main theories of management and their application in physical education, in athletic scenarios and in physical-sport training.

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 4180 MEASUREMENT, EVALUATION AND INVESTIGATION OF THE DEVELOPMENT OF PHYSICAL FITNESS AND ITS COMPONENTS

Application of the concepts of measurement, evaluation, research and their relations with medical fitness and the components of health and motor capacity. Analysis, design and application of techniques and evaluation and practice instruments.

3 credits

HPER 4200 TECHNIQUES AND SKILLS FOR THE PERSONAL TRAINER

Analysis of the client's profile, which includes the components of physical fitness. Creation of a program of personal training that responds to the interests and needs of the participant. Emphasis on the use of the guides and standards of the organizations that regulate the practices of personal training. Provides practical experience. Prerequisite: HPER 2270.

3 credits

HPER 4305 SPORT TRAINING METHODOLOGY

Study of the scientific principles for physical-sport training to develop an optimal athletic performance. Emphasis on the programming of the training systems for athletes or for those that participate in sports with recreational aims. Provides practical experience.

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 4310 FUNCTIONAL TRAINING METHODOLOGY

Study of the integrated approach for physical-sport training. Application of the components of functional training to improve sport performance and the prevention of injuries. Discussion of the specific exercises that help athletic, daily and occupational activities. Provides practical experience.

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

Clinical experience supervised by professional personnel for the application of the principles of prevention and handling of injuries. Includes participation in the prescription of exercise, as well as in the design of physical-sport training programs. Includes the development of an emergency plan in practices and games, and in record keeping. Requires a minimum of 135 hours of practice. Prerequisites: HPER 3380 and 4308.

3 credits

HPER 4442 PRACTICUM IN ATHLETIC TRAINING II

Use of devices, protective equipment and machines of physical preparation in the clinical experience. Emphasis on participation in the design and supervision of physical-sport training programs. Requires a minimum of 135 hours of practice. 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 examined.

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 Asia 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 3110 RESEARCH IN HISTORY AND PUERTO RICAN LITERATURE

Analysis and application of the process of historical and literary research of Puerto Rico. Integration of the historical and literary knowledge from the eighteenth century to the present. Prerequisite: Have approved 12 credits of the minor.

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 and Restaurant Management (HRMT)

HRMT 1200 INTRODUCTION TO THE TOURISM AND HOSPITALITY INDUSTRY

Description of the general characteristics of the tourism and the hospitality industries and the basic concepts related to the types of companies within them. Emphasis on the organizational aspects and the typical operational procedures of these organizations. Discussion of the impact of these industries in the economy, the society and the natural environment.

3 credits

HRMT 1300 INTRODUCTION TO FOOD AND BEVERAGES MANAGEMENT

Study of the organization of businesses dealing with foods, drinks, and of foodservice organizations. Discussion of the application of managerial functions in food services. Association of basic menus with different segments of the market and types of companies. Description of the equipment for businesses of foods and drinks. Discussion of the health and security requirements in the kitchen. Discussion and application of culinary conversions and food cost estimates. Prerequisite: GEMA 1200.

3 credits

HRMT 1301 PRODUCTION LAB AND BASIC FOOD SERVICES

Use of equipment in the preparation of foods and beverages. Explanation of food production and service. Includes the presentation and the process of table service. Emphasis on the development of the basic concepts of selection and preparation of food: salads, vegetables, cereals, use of spices and plates with animal protein. Application of cooking conversions in preparing food products. Requires 60 hours of lab. Prerequisite: HRMT 1300.

2 credits

HRMT 2100 PROFESSIONAL COMMUNICATION SKILLS IN ENGLISH FOR THE HOSPITALITY AND TOURISM INDUSTRY

Development of the necessary English communication skills for the hospitality and tourism industry, with emphasis on oral expression. Requires 45 hours of lecture-lab. This course must be passed with a minimum grade of B. It will be taken after having approved the nine credits of any level of English of the General Education Program (GEP).

3 credits

HRMT 2101 CONVERSATIONAL ITALIAN FOR TOURISM AND HOSPITALITY

Development of basic Italian vocabulary to provide services in the tourism and the hospitality industry. Requires 45 hours of lecture-lab.

3 credits

HRMT 2102 CONVERSATIONAL FRENCH FOR TOURISM AND HOSPITALITY

Development of basic vocabulary in French to provide services in the tourism and the hospitality industry. Requires 45 hours of lecture-lab.

3 credits

HRMT 2103 CONVERSATIONAL GERMAN FOR TOURISM AND HOSPITALITY

Development of basic vocabulary in German to provide services in the tourism and the hospitality industry. Requires 45 hours of lecture-lab.

3 credits

HRMT 2200 INTRODUCTION TO MARKETING IN THE HOSPITALITY INDUSTRY

Discussion of the principles and basic concepts of marketing applied to the hospitality industry. Includes the organization, planning and the marketing strategies for services in the context of lodging, foodservice and other tourist related businesses. Study of the variables controlled by a company and those beyond its control. Analysis of consumer behavior, the modern marketing trends, segmentation and location of markets, and information systems.

3 credits

HRMT 2302 PRODUCTION LAB AND ADVANCED FOOD SERVICES

Use of equipment in the preparation of food and beverages in large amounts. Emphasis on the development of advanced concepts of food selection and preparation of all categories, which includes pastry and dessert products. Food service in the context of a restaurant. Practice in cooking conversions, estimates of food costs and control of profits. Requires 75 hours of lab. Prerequisites: HRMT 1300, 1301.

2 credits

HRMT 2500 HUMAN RESOURCES MANAGEMENT IN THE HOSPITALITY INDUSTRY

Analysis of the effectiveness of the policies and practices related to human resources management by means of lectures, discussions and cases studies. Emphasis on recruitment, selection, placement and development of human resources. The study of practices related to hotel industry personnel is stressed. Prerequisite: HRMT 1200.

3 credits

HRMT 2600 DRINKS MANAGEMENT AND SERVICE

Application of the managerial functions in commercial beverages operations. Review of the new trends in beverages businesses, that include coffee, tea, natural juice, wines, beers, and frozen drinks, among others. Planning, design and valuation of menus. Valuation of the highest quality service and the responsible serving of alcoholic drinks. Practice in control of portions, estimates of costs and control of profit for businesses serving drinks. Prerequisite: HRMT 1200.

3 credits

HRMT 2650 PURCHASING SYSTEMS AND INVENTORY 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.

3 credits

HRMT 2800 RESTAURANT DEVELOPMENT AND MANAGEMENT

Development of food and beverages concepts for restaurants. Analysis of techniques and practices related to operation management and cost control involved in the planning and operation of a restaurant. Evaluation of managerial functions in a restaurant setting. Discussion of the contribution of foodservice operations in the economic and entrepreneur development in a country. Prerequisite: HRMT 2302.

3 credits

HRMT 2850 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: ACCT 1161, HRMT 2650 y HRMT 2800.

3 credits

HRMT 2915 RESTAURANT MANAGEMENT PRACTICUM

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, HRMT 2650 y HRMT 2800.

4 credits

HRMT 3010 RECEPTION DEPARTMENT

Systematic analysis of the procedures of the front office department 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 45 hours of lecture-lab. Prerequisite: HRMT1200.

3 credits

HRMT 3300 PHYSICAL FACILITIES MANAGEMENT

General functions of the Housekeeping and Engineering Departments of a hotel organization. Discussion of topics related to the general security and maintenance of the physical facilities of a hotel, with emphasis on the preservation of the natural environment. Laundry operations, maintenance and preservation of rooms and public facilities. Technological considerations related to the operations of the property and control of costs. Prerequisite: HRMT 1200.

3 credits

HRMT 3330 FINANCIAL MANAGEMENT FOR HOSPITALITY ORGANIZATIONS

Study of the application of managerial functions in the financial administration of a hotel company. Application of quantitative methods for the planning and control of hotel operations, the evaluation of its capital structure and the optimal administration of its financial assets. Study of the different factors that determine the viability of a hotel project and its potential to generate income. Prerequisites: HRMT 1200, ACCT 1162.

3 credits

HRMT 3400 MANAGEMENT OF CASINOS

Presentation of the topics related to the management of casinos in Puerto Rico. Application of the managerial functions in elements related to marketing and accounting systems, the management of credit and the control tools in the operation of a casino. Discussion of the most common games of chance in the casinos of the country. Analysis of the impact of games of chance in society. Development of strategies to foment an ethical behavior related to the industry of games of chance. Prerequisites: HRMT 1200, ACCT 1161.

3 credits

HRMT 3500 TECHNOLOGY AND INFORMATION SYSTEMS IN THE HOSPITALITY INDUSTRY

Fundamental aspects of computerized systems and the administration of information systems in a company in the hospitality industry. Discussion of the application of general programs such as: word processors, spreadsheets, presentations and databases in hotel and restaurant operations. Application of technology in hotel operations, food and beverages service, sales and accounting. Prerequisites: GEIC 1010, HRMT 1200 and ACCT 1161.

3 credits

HRMT 4400 MEETINGS AND CONVENTION MANAGEMENT

Sales process and service in the meetings market. Identification and study of the segments that make up this market. Analysis of effective sales techniques for these markets. Planning and developing different types of services for conventions and meetings. Prerequisites: HRMT 2200.

3 credits

HRMT 4915 INTERNSHIP IN HOTEL MANAGEMENT

Application of theories and concepts learned in a real business setting. Supervised work experience in the field of lodging facilities management under the supervision of a faculty member of the Hotel and Restaurant Management Program. Requires 15 hours of lecture and a minimum of 285 hours in the Practice Center. Prerequisites: HRMT 2800, 4400, 3500, 3010, 3330.

5 credits

Courses in Industrial Engineering (INEN)

INEN 3411 OPERATIONS RESEARCH 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: MATH 3350.

3 credits

INEN 3412 OPERATIONS RESEARCH 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-fitness 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 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 3600 SUSTAINABLE ENGINEERING AND INDUSTRIAL ECOLOGY

Analysis of the natural cycles of the planet, entropy and sustainable materials. Discussion of principles of industrial ecology, material flow and energy from industrial systems, prevention of pollution and design for the environment. It includes the use of tools for the evaluation of the life cycle. Requirement: ENGR 1200.

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. Requires 60 hours of lecture-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 STATISTICAL QUALITY CONTROL

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 60 hours of lecture-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 60 hours of lecture-lab. Prerequisite: INEN 3710.

4 credits

INEN 4420 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 60 hours of lecture-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). Prerequisite: INEN 3430.

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 4511 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 60 hours of lecture-lab. Prerequisite: INEN 3710.

3 credits

INEN 4512 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 4511.

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 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. Prerequisite: INEN 4400.

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 4595 PROJECT MANAGEMENT AND SYSTEMS ENGINEERING

Analysis of the processes and tools to manage projects and business development taking into account coupling systems, risk analysis and life cycle models. Reengineering and automation, human factors and processes in decision making will be considered. Prerequisites: ENGR 3300 and INEN 3430.

4 credits

INEN 4600 AUTOMATED MANUFACTURING

Study of the components and the design of automated manufacturing systems. Includes: transfer lines, automated assembly lines, digitally controlled machines, industrial robots, automated material handling systems, programmable logic controllers (PLC), and flexible manufacturing systems. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ENGR 2130.

3 credits

INEN 4610 SERVICES OPTIMIZATION

Analysis of issues associated with the design and management of service operations. Emphasis on industrial engineering tools to evaluate operations, redesign of processes and the establishment of systems in order to improve the customer experience. Prerequisites: INEN 3411, INEN 4511.

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 3430.

3 credits

INEN 4810 COMPREHENSIVE DESIGN EXPERIENCE

Application of 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. Requires the authorization of the department director.

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 4921 UNDERGRADUATE RESEARCH IN INDUSTRIAL ENGINEERING I

Development of a research project in the area of industrial engineering under the supervision of a faculty member. The student will dedicate a minimum of 135 hours of work in the development of this project. Requirement: Approval of the department chair.

3 credits

INEN 4922 UNDERGRADUATE RESEARCH IN INDUSTRIAL ENGINEERING II

Development or continuation of a research project in the area of industrial engineering under the supervision of a faculty member. The student will dedicate a minimum of 135 hours of work in the development of this project. Requirement: INEN 4921 and the approval of the department chair.

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 Information Technology (ITEC)

ITEC 1100 INTRODUCTION TO INFORMATION TECHNOLOGY

Study of the components, concepts, principles and ethical aspects that govern information technology. 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

ITEC 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. Requires a total of 45 hours of lecture/lab. Requires additional time in an open lab.

3 credits

ITEC 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: ITEC 1200.

3 credits

ITEC 2310 VISUAL PROGRAMMING IN INFORMATION SYSTEMS

Analysis, design and implementation of programs that use a visual programming language. Administration of objects, their properties, events and methods. Requires a total of 45 hours of lecture/lab. Requires additional hours in an open lab. Prerequisite: ITEC 1200.

3 credits

ITEC 2450 DEVELOPMENT OF WEB PAGE

Design, development and publication of commercial pages in Internet sites that uses a programming language oriented towards the Web. Requires a total of 45 hours of lecture/lab. Requires additional hours in an open lab.

3 credits

ITEC 2560 PROGRAMMING OF MOVABLE APPLICATIONS

Study of the concepts, platforms, structures and syntax of one of the programming languages used in the development of applications for movable devices. Operation of the instructions and tools of the language in problem solving by using intelligent devices. Requires additional hours in an open lab. Prerequisite: ITEC 1200.

3 credits

ITEC 3130 DATABASE DESIGN AND MANAGEMENT

Analysis of the basic foundations and the application of database system management. Emphasis on the design and administration of data bases by using different models, methodologies and environments. Requires a total of 45 hours of lecture/lab. Requires additional hours in an open lab. Prerequisite: ITEC 2310.

3 credits

ITEC 3330 PROGRAMMING LANGUAGE

Study of a programming language in information technology in the company. Use of a programming language for problem solving in the organization. Requires a total of 45 hours of lecture/lab. Requires additional hours in an open lab. Prerequisite: ITEC 1200.

3 credits

ITEC 3350 TELECOMMUNICATIONS AND BUSINESS NETWORKS

Analysis of the concepts of telecommunications and networks from an organizational perspective. Discussion of technologies, topologies, equipment and security of networks. Analysis of models OSI and TCP/IP. Prerequisite: ITEC 2450.

3 credits

ITEC 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: ITEC 2450.

3 credits

ITEC 3420 INFORMATION SYSTEM ANALYSIS AND DESIGN

Analysis of the methodologies for the design of information systems. Emphasis on the application of the means and techniques in the life cycle of the development of an information system. Requires a total of 45 hours of lecture. Requires additional hours in an open lab. Prerequisite: ITEC 3130.

3 credits

ITEC 3570 PROGRAMMING OF INTERNET

Analysis of the concepts, structures and syntax of a programming language for Internet to be used in business problem solving. Requires a total of 45 hours of lecture/lab. Requires additional hours in an open lab. Prerequisite: ITEC 2450

3 credits

ITEC 4500 AUDITING AND SECURITY OF INFORMATION SYSTEMS

Analysis of the procedures and methods of the audit applied to information systems. Includes the aspects of security and the physical and logical controls. Prerequisite: ITEC 3420.

3 credits

ITEC 4870 MANAGEMENT OF INFORMATION SYSTEMS PROJECTS

Analysis of the organization, planning, and control of information systems projects. Discussion of the scope of the administration of schedule and resources of the project. Practice in the use of project management programs. Requires a total of 45 hours of lecture/lab. Prerequisite: ITEC 4500

3 credits

ITEC 4915 PRACTICUM

Work experience in a private or public organization in the field of information technology, under the supervision of a faculty member and in coordination with the immediate supervisor of said organization. Requires that the student devote 135 hours during the academic term to carry out the practice. Prerequisite: Authorization of the director of the department or coordinator of the Program.

3 credits

ITEC 4916 PROJECT

Development of a practical project of information systems, under the direction of a faculty member. Prerequisite: Authorization of the director of the department or coordinator of the Program.

3 credits

ITEC 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: ITEC 3420.

3 credits

Courses in Computer Technology and 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 laboratory.

3 credits

COTN 1120 DESIGN OF COMPUTER PROGRAMS

Discussion of the fundamental concepts and strategies for the design and creation of computer programs. Introduction to programming through the use of a visual programming language. It requires additional hours of open laboratory.

3 credits

COTN 1131 ELECTRONICS I

Discussion of the concepts of electricity, electronic components and functions. Analysis of electronic circuits using Kirchhoff's, Thevenin'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 laboratory. Prerequisite: GEMA 1200.

3 credits

COTN 1210 COMPUTER MATHEMATICS

Study and discussion related to the Boolean algebra, the truth table, the numerical systems, the binaries, the octal, the hexadecimals, their arithmetic operations and their application to computer science. Representation of symbolic characters using the ASCII code.

3 credits

COTN 1220 DATA COMMUNICATION

Study of the concepts and terminology associated with the dynamic industry of data communication. Study of the development of computerized communications, data communications components, architecture and interconnection of data networks, and work trends in communication networks.

3 credits

COTN 1230 MICROCOMPUTER OPERATING SYSTEMS

Study and evaluation of the operation of the main operating systems. Identification of hardware requisites. Installation and configuration of operating systems on various platforms. It requires 30 hours of lecture and 30 hours of closed laboratory.

3 credits

COTN 2121 NETWORK ADMINISTRATION I

General introduction to the administration of modern networks. System administration and responsibilities, management of resources, basic components, types of networks, addressing, expansion and interconnectivity. It requires 30 lecture hours and 30 laboratory hours. Preequisite: COTN 1220.

3 credits

COTN 2122 NETWORK ADMINISTRATION II

Application of the knowledge and practical experiences of a network. Installation of network programs on a server and its nodes. Theoretical and practical study of topics related to the administration of networks, the different platforms of software applications, the control of shared resources, the procedure and security methodologies and installation of servers. It requires 30 lecture hours and 45 laboratory hours. Prerequisite: COTN 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 laboratory. Prerequisite: COTN 1131.

3 credits

COTN 2150 IMPLEMENTATION OF NETWORK APPLICATIONS

Discussion of the installation and configuration of the programs used in the market in personal computers and network systems. It requires 30 hours of lecture and 30 hours of closed laboratory. Prerequisite: COTN 2121.

3 credits

COTN 2160 NETWORK INSTALLATION AND CONFIGURATION OF RUTERS AND SWITCHES

Planning, design and implementation of modern networks. Emphasis on skills for the installation and configuration of networks based on structured cabling and its comparison and integration with wireless networks. Management and configuration of communication devices, such as routers and switches. It requires 30 hours of lecture and 45 hours of closed laboratory. Prerequisite: COTN 2121.

2 credits

COTN 2210 DIAGNOSTICS AND MAINTENANCE OF COMPUTERIZED SYSTEMS

Analysis and maintenance of the main computerized systems equipment through the use of software and diagnostic equipment. Analysis of quotations and optimizations of system components. Requires 30 hours of lecture and 30 hours of closed laboratory. Prerequisite: COTN 1131 y 1230.

3 credits

COTN 2220 DESIGN AND IMPLEMENTATION OF WEB APPLICATIONS

Planning, development, publication and evaluation of portals for the Internet. Use of existing design applications for Web pages in the labor market. Conference-laboratory. It requires additional hours of open laboratory. Prerequisite: COTN 1120.

3 credits

COTN 2230 NETWORK DIAGNOSIS, SERVICE AND MAINTENANCE

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 laboratory. Prerequisite: COTN 2121.

3 credits

COTN 2910 PRACTICE

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

COTN 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. Evaluation of costs and other factors related to the design of computerized systems. Prerequisites: COTN 2210.

3 credits

COTN 3310 DATABASE ANALYSIS AND DESIGN

Study of the different models of existing databases. Design and implementation of a database based on the analysis of the structure of the databases. Evaluation of the operational requisites for its implementation. Conference-laboratory. It requires additional hours of open laboratory. Prerequisite: COTN 2220.

3 credits

CSIR 3315 ANALYSIS AND DESIGN OF COMPUTERIZED SYSTEMS

Analysis of computer systems and the work environment of system analysts. Identification of the basis ways of design and the principles of project management. Study of the different methods of designing a system and the principles of project management. Prerequisite: COTN 3310.

3 credits

COTN 3971 EMERGING TOPICS IN NETWORK TECHNOLOGY

Analysis of the most recent changes in network technology and their application in the business environment. Prerequisites: COTN 2122 and 2160.

3 credits

COTN 4150 NETWORK SECURITY

Analysis, design and implementation of security measures. Emphasis on encryption, authentication, access control, traffic filtering. Evaluation of the prevention measures currently used in data networks and their ethical-legal implications. It requires 30 hours of lecture and 45 hours of closed laboratory. Prerequisites: COTN 2122 and 2230.

3 credits

COTN 4200 CRYPTOGRAPHY

Analysis of the different types of electronic encryption used in information systems. Emphasis on the use of encryption mechanisms to secure resources in a network environment. It requires 30 hours of lecture and 30 hours of closed laboratory. Prerequisite: COTN 4150.

3 credits

COTN 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: COTN 3315 and BADM 1550 or BADM 1900.

3 credits

COTN 4500 COMPUTER ASSEMBLY

Selection and acquisition of parts and equipment for computer construction. Design and construction of a personal computer. Study of the modification process and techniques for implementing the system. Analysis of quotations and optimization of system components. Requires 30 hours of lecture and 45 hours of laboratory.

3 credits

COTN 4910 PRACTICE

Practical experience in a real scenario of supervised work in the area related to the program. Analysis and discussion of problems and practical situations that arise in the work environment. Supervision of the student's performance of the skills acquired. It requires the student to dedicate 180 hours during the academic term to develop the assigned project. Prerequisite: Approval of the department director.

3 credits

Courses in Institutional Chaplaincy (CHAP)

CHAP 1101 HISTORY OF CHAPLAINCY

Study of the history of chaplaincy from its origins to the present time. Emphasis on Puerto Rican institutional chaplaincy. Discussion of the contributions of the great thinkers and the Movement of the pastoral care.

3 credits

CHAP 1102 THEORY OF INSTITUTIONAL CHAPLAINCY

Study of the function of the chaplain as part of patient care. Development of skills for the design of a strategic plan of pastoral/spiritual care for each scenario.

3 credits

CHAP 2101 SPIRITUALITY, RELIGION AND MENTAL HEALTH

Analysis of the difference between religion and the contemporary theories of spirituality in its relationship with mental health. Analysis of the group process and the narrative analysis as a didactic method of the course.

3 credits

CHAP 2102 CLINIC-THEOLOGICAL REFLECTION METHODS OF PASTORAL CARE

Discussion of the contributions that are made to the clinical-theological reflection of spiritual/pastoral care, such as the Quadrilateral Method of Juan Wesley; the Correlational Method revised by Paul Tillich; the Method of Whitehead and the Method to see, judge, act, celebrate and evaluate of Casiano Floristán. Analysis of cases.

3 credits

CHAP 2103 THEORIES OF PASTORAL CLINICAL EDUCATION

Discussion of the psychological, sociological, theological theories and the theoretical practical postulates of the pastoral-clinic theology. Application of the theories in the pastoral care process. Analysis of the impact that the personal, social and cultural perspective, as well as the theological-religious perspectives could have on the chaplain-patient relationship.

3 credits

CHAP 2104 DIDACTIC THEORIES AND THEIR CLINICAL APPLICATION TO CHAPLAINCY

Discussion of the techniques based on the theories of Anton T. Boisen, Paul W. Pryser, Wayne E. Oates and Seward Hitner, among others, that help students develop a better understanding of their role as providers of clinical pastoral care in varied scenarios. Analysis of the interaction between religious and theological beliefs, the values and the attitudes of students and their role when offering pastoral care.

3 credits

CHAP 2105 INTERVENTION AND MANAGEMENT OF CRISIS

Development of techniques for the management of crisis in cases of loss, depression, gender violence, the experience of death and other topics of clinical interest.

3 credits

CHAP 2106 INTERVENTION IN PASTORAL CARE

Discussion of the different intervention methods and theories that are consistent with pastoral care, in agreement with the parameters and standards established by the Association of Clinical Pastoral Education (ACPE, for its abbreviation in English). Includes the formation of a pastoral identity, the development of the abilities to listen with attention, to interpret and to confront in agreement with the goals developed in the intervention plan.

3 credits

CHAP 2107 PASTORAL CARE AND SOCIAL CRISIS

Analysis of the pastoral function within the social-political-spiritual and economic context from the point of view of the Model to see, judge, act and celebrate of Casiano Floristán as a provider of see-psico-social-

spiritual aid in crisis situations. Study of cases to apply techniques of pastoral care and mediation of conflicts.

3 credits

CHAP 2108 PROFESSIONAL PRACTICE

Supervised practice in a real work scenario related to chaplaincy. This will be performed under the supervision of a faculty member and a qualified professional of the agency or organization where the student is located. Requires 135 hours of practice and approval of the Director of the Department or his representative. In addition, students must have passed the courses of the major (CHAP). Corequisite CHAP 2109.

3 credits

CHAP 2109 INTEGRATION SEMINAR

Critical analysis of situations related to spiritual/pastoral care and the process of aid for dealing with clients. Requires approval of the Director of the Department or his representative. Corequisite CHAP 2108.

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 DISABILITY 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 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 AWARENESS 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 2101, 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 FUNDAMENTALS 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 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 ECONOMETRICS

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 Marine Sciences (MASC)

MASC 1600 FUNDAMENTALS OF OCEANOGRAPHY

Discussion of the history and development of oceanography, the physico-chemical properties of sea water, the currents, tides, waves, and the geologic aspects of the sea-floor. Study of the different ecosystems of the sea, the biological processes, and the effect of climate change on the seas and oceans. Emphasis in the oceanographic characteristics of the Caribbean.

3 credits

MASC 2610 INTRODUCTION TO GEOLOGY

Introduction to the composition and dynamics of the Earth from the atomic scale of minerals to the global scale of tectonic plates. Emphasis in the composition of minerals and rocks, the structures of the Earth, processes of the surface of the Earth, and the geologic scale, all this by means of the analysis of the human interactions in the geologic processes.

3 credits

MASC 2630 DIVING IN MARINE SCIENCES

Development of the skills and the basic techniques of diving as a tool of marine research, particularly in the Caribbean. Data obtention, specimen collection, and planning, and implementation of underwater research. Discussion of the basic concepts of diving and practice in a pool and in the sea. Prerequisites: MASC 1600, satisfactory-passed swimming test, and medical certification of aptitude for diving. Requires 15 hours of lecture and 60 hours of closed lab.

3 credits

MASC 2640 NAUTICAL SCIENCES

Discussion of the principles of boat handling and navigation as a tool in marine sciences. Discussion of the types of recreational, fishing, and research boats, and their use of cartography, pilotage, moorings and knots, safety in navigation, and the use of electronic navigation technology. Prerequisite: MASC 1600.

3 credits

MASC 3600 MARINE BIOLOGY

Study and discussion of the biotic diversity of the seas, coasts and estuaries, their distribution, physiology, behavior, adaptations, ecology, and the relationships between the organisms and the physico-chemical environment. Special consideration to the tropical and Caribbean marine biology. Prerequisites: MASC 1600 and BIOL 2010.

3 credits

MASC 3603 MARINE BIOLOGY LABORATORY

Complementary and supplementary laboratory practices to the course of Marine Biology. Experiences in a closed laboratory, and field trips that emphasize biological, adaptive and ecological aspects of the biota of the seas and coasts, particularly of the Caribbean and Puerto Rico. Requires 45 hours of closed lab. Corequisite: MASC 3600.

1 credit

MASC 3610 MARINE BOTANY

Discussion of systematics, morphology, physiology, ecology, evolution, and the economic importance of algae and marine plants. Description and analysis of the collection, preservation and identification of algae and marine plants. Includes field trips. Prerequisite: MASC 3600.

3 credits

MASC 3620 ICHTHYOLOGY

Discussion of biology, systematics, evolution, identification, and ecology of marine fish, with emphasis in their diverse structural, physiological, and behavioral adaptations. Emphasis in the biology of Caribbean fish. Includes field trips. Prerequisite: MASC 3600.

3 credits

MASC 3650 ADVANCED OCEANOGRAPHY

Analysis and discussion of the chemical, geological and physical processes of the oceans. Emphasis in the descriptive chemistry of the oceans, and in their sediments, origin, evolution, and the geological characterization of these, and the different oceanic movements. Special attention to the Caribbean characteristics of these topics. Includes field trips. Prerequisites: MASC 1600 and 2610.

3 credits

MASC 3930 MARINE RESEARCH METHODS

Planning, design and beginning of a marine research under the supervision of a mentoring professor. Emphasis in the review of literature, the development of the methodology, the obtention and analysis of data. Prerequisite: MASC 3600.

3 credits

MASC 397_ SPECIAL TOPICS

Analysis and discussion of different current and relevant topics in the area of marine sciences. Prerequisites: MASC 3600 and 3650.

3 credits

MASC 4030 CORAL REEF ECOLOGY

Analysis and multidisciplinary discussion of the biology, physiology, and ecology of the coral reef ecosystems and the organisms associated with these. Emphasis in the processes that contribute to the function and complexity of these ecosystems, and the need of their protection and conservation. Includes field trips. Prerequisites: BIOL 3503, MASC 3600 and 3620.

3 credits

MASC 4040 BIOLOGY OF MARINE MAMMALS, BIRDS AND TURTLES

Analysis and discussion of biology, systematics, evolution, identification, and the ecology of sea birds, sea turtles, and marine mammals, with emphasis in their diverse structural and physiological, and behavioral adaptations. Includes the current state of the conservation programs of these vertebrates in the Caribbean area. Prerequisite: MASC 3600.

3 credits

MASC 4050 MARINE RESOURCE CONSERVATION AND MANAGEMENT

Analysis, discussion, and application of the techniques, policies, management, and administration of marine resources. Emphasis in marine political geography, international oceanic law, fishing, coastal zone management, and marine transportation. Application of these topics to the existing problems and conflicts in Puerto Rico and the Caribbean. Includes field trips. Prerequisites: MASC 3600 and 3650.

3 credits

MASC 4610 COASTAL GEOMORPHOLOGY

Analysis and discussion of the physical, geologic and biological processes that regulate the form and development of the coastline. Emphasis in the geographic variations, the impact of humans in these, and the management and conservation policies regarding environmental problems that these coastal systems face. Includes field trips. Prerequisite: MASC 3650.

3 credits

MASC 4910 PRACTICUM IN MARINE SCIENCES

One hundred thirty-five (135) hours of practical work in a scenario of marine research under the supervision of the authorized personnel in a practice center. Prerequisites: MASC 3930 and the authorization of the coordinator of the program.

3 credits

MASC 4930 MARINE RESEARCH

Development of a research project under the supervision of a mentoring professor. Obtention and analysis of data in the laboratory and field trips, and the presentation of research results in a written and oral form. Prerequisites: MASC 3930 and the authorization of the program coordinator.

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 PRACTICE

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 135 hours during the semester to complete the assigned work. Requires authorization of the Department Director.

3 credits

MKTG 2970 SEMINAR IN SALES

Integration of knowledge, skills and attitudes in a simulated work scenario. Application of techniques or methods to situations related to the sale area. Requires authorization of the Director of the Department.

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 qualitative 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 2220.

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.

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 PRACTICE

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 135 hours during the academic term. Prerequisites: Authorization of the Department Director, or the Program Coordinator and have approved MKTG 4240 and 4243.

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 Marketing and Sales (MAMS)

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 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, polynomial, 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. Prerequisite: GEMA 1200.

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

Study of descriptive statistics that includes the basic terminology, data collection by means of sampling methods, graphical representations, the measures of central tendency and dispersion. Introduction to statistical inference by means of estimation and the test of hypothesis. Review of the relation and the representation of data of two variables and the application of correlation analysis and its linear regression. Application of the fundamental concepts of empirical and theoretical probability, the calculation of probabilities of compound events and probability distributions. Use of the graphical calculator and computer programs. Prerequisite: MATH 1500 or MATH 1512.

3 credits

MATH 2200 COMBINATORY ANALYSES AND PROBABILITY

Study of the algebra of sets, the mathematical induction, the theorem of the binomial and the geometric successions and series. Emphasis on the enumeration methods that include selections with and without repetition and the combinatory identities. Study of the axioms and the theorems of classic probability with emphasis on the applications of the Bayes Theorem. Discussion of the main discrete distributions and their measures of central trends and dispersion. Prerequisite: MATH 2100.

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 or 1512.

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 or 1512.

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 indeterminate forms and the application of the L'Hôpital 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 2300 STATISTICAL INFERENCE

Definition and use of the language of statistical inference and the basic terminology of hypothesis tests. Study of the confidence intervals and their relation with the hypothesis tests. Use of tests with respect to proportions and by halves that include the analysis with two populations. Study and application of the analysis of variances. Prerequisite: MATH 2100.

3 credits

MATH 2380 TOPICS IN GEOMETRY

Study of the fundamental concepts of Euclidean geometry and its application to make mathematical demonstrations. Analysis and application of a selection of topics of Euclidean geometry. Study of the basic principles of non-Euclidean geometries. Use of available technology. Prerequisites: MATH 1500 or MATH 1511 and MATH 1512.

3 credits

MATH 2400 THE LANGUAGE OF MATHEMATICS

Presents the techniques for the demonstration of theorems from the logical point of view as well as from the esthetic point of view. Study of select topics that include fundamental concepts of non-Euclidean geometries, of the countable and the non-countable sets, of prime numbers, the abstract groups and of propositional calculus. Appreciation of the esthetical and ethical aspects of mathematics. Emphasis in the communication of mathematical knowledge with clarity and precision. Prerequisites: MATH 1500 or MATH 1511 and MATH 1512.

3 credits

MATH 3000 SAMPLING TECHNIQUES

Study and application of the basic foundations and the properties of the theory of probabilistic sampling. Review of the different types of sampling, the situations where they should be used and their advantages and the limitations. Prerequisite: MATH 2200.

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 3100 NONPARAMETRIC STATISTICS

Study of the presumptions of tests of hypotheses that require nonparametric statistics, such as Chi-Square, Kendall, McNemar, Cochran, Kruskal-Wallis, Mann-Whitney, among others. Application of nonparametric statistics for decision making in different disciplines. Prerequisite: MATH 2300.

3 credits

MATH 3130 THEORY OF NUMBERS

Study of the properties of divisibility of whole numbers, the prime numbers and prime factorization. Analysis of congruences, their relation with diophantine equations and their applications. Application of the basic concepts to the multiplicativas functions, the primitive roots and the primacy tests. Emphasis in the mathematical demonstration. Applications of the theory of numbers to the cryptography. Use of computers in an open lab. 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

Analysis and application of linear equations systems. Development of matrices, determinants and vector spaces. Demonstration of linear dependencies, bases, dimensions and linear transformations. Evaluation of eigenvalues, eigenvectors and approximation by numerical methods. Use of mathematical software tools. Requisite: 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 3350 LINEAR ALGEBRA

Analysis and application of linear equations systems. Development of matrices, determinants and vector spaces. Demonstration of linear dependencies, bases, dimensions and linear transformations. Evaluation of eigenvalues, eigenvectors and approximation by numerical methods. Use of mathematical software tools. Requisite: MATH 2251.

3 credits

MATH 4151 NUMERICAL ANALYSIS I

Application of numerical analysis techniques: roots of non-linear equations, interpolation of functions, numerical differentiation and integration by finite sums. Analysis of the solution of linear and nonlinear equation systems by successive approximations of equation systems. Use of mathematical software. 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 R^n 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 4910 PRACTICE AND PROFESSIONAL ETHICS

Completion of tasks through the application of the knowledge and the skills developed in the program in a real work environment and in an institution approved by the practice coordinator. Integration of issues related to the ethics of the profession. It requires a total of 135 hours of practice. Prerequisite: MATH 3091 or MATH 3400.

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. Co-requisites: PHYS 3311 and MATH 2252.

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 3005.

3 credits

MECN 3115 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. Prerequisites: MECN 3010 and MATH 3400.

3 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 3115.

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 3165 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. Prerequisite: MECN 3005.

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 3365.

3 credits

MECN 3250 MANUFACTURING PROCESS LABORATORY

Study of manufacturing processes and materials. Emphasis on the following processes: metal casting, metals and plastics shaping, heat treatment, welding and powder metallurgy. It includes the processes of turning, milling, cutting and polishing, among others. Analysis of integrated and automated systems for manufacturing. It requires 45 hours of laboratory. Prerequisite: ENGR 2220.

1 credit

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. Prerequisite: MECN 3005.

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 3005.

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. Prerequisite: 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 4201.

3 credits

MECN 4105 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 3010 and 3500.

3 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: MECN 3165.

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 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 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: MATH 2252.

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 psychrometric 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.

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 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. Prerequisite: MECN 4201.

3 credits

MECN 4230 AIR CONDITIONING AND REFRIGERATION

Analysis of refrigeration and air conditioning fundamentals. Emphasis on psychrometric computations, comfort and load calculations. Identification of industrial and commercial refrigeration requirements. Selection of equipment: pumps, fans, louvers and heat exchangers. Prerequisite: MECN 4201.

3 credits

MECN 4235 HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS DESIGN

Study HVAC systems to provide efficient and effective environmental control inside buildings and architectural spaces. Integrate architectural requirements and limitations, air flow conditions and equipment selection considering their impact on system performance and energy costs. Design an HVAC system following the applicable codes and regulations. Prerequisite: MECN 4230.

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 4201.

3 credits

MECN 4305 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. Prerequisite: MECN 3165.

4 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 3135.

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: MATH 3400.

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 3010.

3 credits

MECN 4710 FLUID MECHANICS AND THERMAL SCIENCE LABORATORY

Development of skills and basic techniques of mechanical engineering laboratory. Emphasis on safety rules, measurement systems, statistical methods and the proper use of laboratory equipment. Application of laboratory techniques for the analysis of volume or mass flow, pressure center and stability in floating bodies. Flow measurement through the application of the Bernoulli equation, losses in pipes, centrifugal pumps. Use of experimental methods for the calculation of enthalpy of water phase change and water specific heat. Experimental practice in heat exchangers. Application of experimental techniques for different heat transfer mechanisms. Emphasis on refrigeration techniques and gas turbines. It requires 45 hours of laboratory. Requirements: MECN 3115 and 4201.

1 credit

MECN 4720 ENGINEERING MATERIALS MATERIAL AND SOLID MECHANICS LABORATORY

Application of laboratory techniques for the metallurgical analysis of materials. It includes the preparation, handling and micro structural analysis of materials, hardness tests, and thermal treatments. Use of experimental methods for the calculation of effort and deformations. Placed emphasis on impact, tension, torsion, bending beams, columns, columns under eccentric loads, deflections of welds and combined forces. It requires 45 hours of laboratory. Requirements: MECN 3165 and 4305.

1 credit

MECN 4730 INSTRUMENTATION, CONTROL AND VIBRATIONS LABORATORY

Application of laboratory techniques for statistical analysis, basics of measurement and calibration. Emphasis on temperature, pressure, flow and level sensors. Software implementation of industrial controllers. Placed emphasis on the proportional controllers, PD, PI and PID. Use of experimental methods for the calculation of natural frequency and damping. Emphasis on free and harmonic vibrations in one and two degrees of freedom for linear and torsional systems. It requires 45 hours of laboratory. Requirements: MECN 4105 and 4610.

1 credit

MECN 4815 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 the approval of the department chair.

3 credits

MECN 4820 AEROSPACE EXPERIENCE

Integration of the concepts and methods of analytics used in aerospace engineering. Emphasis on aerospace design. 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. Requires the approval of the department chair.

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

MECN 4921 UNDERGRADUATE RESEARCH IN MECHANICAL ENGINEERING I

Development of a research project in the area of mechanical engineering under the supervision of a faculty member. The student will dedicate a minimum of 135 hours of work in the development of the undergraduate research project. Requirement: Approval of the department chair.

3 credits

MECN 4922 UNDERGRADUATE RESEARCH IN MECHANICAL ENGINEERING II

Development or continuation of a research project in the area of mechanical engineering under the supervision of a faculty member. The student will dedicate a minimum of 135 hours of work in the development of the undergraduate research project. Requirements: MECN 4921 and the approval of the department chair.

3 credits

Courses in Medical Sonography (SONO)

SONO 3000 BASIC PRINCIPLES OF ULTRASOUND

Knowledge of the basic principles of ultrasound as a diagnosis modality. Includes the terminology and the advanced technology.

3 credits

SONO 3005 ANATOMY AND PATHOPHYSIOLOGY MSK

Study of the fundamental principles of anatomy and muscular skeletal physiology. The most common pathophysiological considerations are included.

3 credits

SONO 3010 ULTRASOUND PHYSICS I

Exposure to the basic concepts of ultrasonic physics and ultrasonic wave generation. Emphasis in the study of ultrasonic energy reflection methods, variation in sound beam patterns, interfaces with basic instrumentation techniques. It includes the discussion of the basic types of equipment, the correction of the artifacts, the ALARA principle and the biological effects. Requires: 30 hours of lecture and 30 hours of closed laboratory.

3 credits

SONO 3011 SONOGRAPHY MSK IN THE UPPER EXTREMITIES

Analysis of the techniques of tracking related to the criteria for the acquisition of ultrasound high resolution images applied to the muscular skeletal regions of the upper extremities. Prerequisite: SONO 3010.

3 credits

SONO 3012 SONOGRAPHY MSK IN THE LOWER EXTREMITIES

Analysis of the techniques of tracking related to the criteria for the acquisition of ultrasound high resolution images applied to the muscular skeletal regions of the lower extremities. Prerequisite: SONO 3011.

3 credits

SONO 3015 ULTRASOUND PHYSICS II

Analysis of the concepts related to the operation and maintenance of sonographic equipment, cardiovascular instrumentation and the new digitized systems. Discussion of the Doppler effect and its applications, hemodynamics, color, color flow, M-mode and spectral. Study of the artifacts, their correction, the security measures and their quality guarantee. Evaluation and selection of images of optimum quality. Prerequisite: SONO 3010.

3 credits

SONO 3021 ABDOMEN SONOGRAPHY

Demonstration of the clinical applications of ultrasound for the area of the abdomen and retroperitoneum. Emphasis on selection and adjustments, instrumentation, terminology, medical order, normal, variable and pathological anatomy, measurements, transplants, Doppler, emergencies, clinical laboratories, imaging studies and the pediatric patient. Requires: 30 hours of lecture and 30 hours of closed laboratory. Requisites: SONO 3000 and 3010.

3 credits

SONO 3022 PEDIATRIC AND ADULT PELVIC SONOGRAPHY

Illustration of the clinical ultrasound applications for the pediatric and adult pelvis. Emphasis on the evaluation parameters, the medical order, the anatomy, the variants, the congenital anomalies, the pathologies and the measures according to the age of the patient. Application of the Doppler technique, infection control, patient monitoring, emergency management, assessment of clinical laboratories, complementary diagnostic imaging tests, patient education and compliance with ethical and legal aspects. Requires: 30 hours of lecture and 30 hours of closed laboratory. Prerequisite: SONO 3010.

3 credits

SONO 3024 OBSTETRIC SONOGRAPHY

Demonstration of clinical applications, preparation, guidance, instrumentation, technical factors, documentation and optimization of the image through the application of appropriate tracking techniques. Description of the visualization, documentation, anatomy, physiology, and pathology of the mother and the embryo during each trimester. Emphasis on fetal measurements, tracking standards, appearance and normal and abnormal embryological development. It includes high risk pregnancies, syndromes and fetal pathologies. Prerequisite: SONO 3022. Requires: 30 lecture hours and 30 hours of closed laboratory.

3 credits

SONO 4000 SPECIAL SONOGRAPHIC STUDIES

Identification of normal anatomy, anatomical variables, anomalies and pathologies of salivary glands, thyroid, parathyroid, breast, neonatal neuro-sonography, pediatric hip, FAST and e-FAST. Use of instruments and sonographic applications. Requires: 30 hours of lecture and 30 hours of closed laboratory.

3 credits

SONO 4010 MUSCULOSKELETAL SONOGRAPHY

Discussion of the clinical applications of ultrasound in the musculoskeletal system for the evaluation of tendons, the synovial membrane, the bursa, the ligaments and the nerves, the shoulder, the elbow, the wrist, the knee, the ankle and the pathologies of the infantile picture. It includes a laboratory section on basic tracking techniques and protocol. Requires: 30 hours of lecture and 30 hours of closed laboratory.

3 credits

SONO 4045 CARDIOVASCULAR SONOGRAPHY

Examination of the protocol and transthoracic ultrasound scanning techniques. Includes 2D, M-mode, Doppler and Color Flow applications. Emphasis on the sonographic appearance of congenital diseases of the heart, its valves and large blood vessels. Requires: 30 hours of lecture and 30 hours of closed laboratory.

3 credits

SONO 4050 INTRODUCTION TO ECOCARDIOGRAPHY

Recognition of embryology, its structure and cardiovascular function. Discussion of cardiac anatomy and blood vessels, nervous control of the heart, cardiac cycle phases, electrical conduction, cardiac function tracings, cardiopulmonary resuscitation, elements of cardiovascular pharmacology and tracking. Requires: 30 hours of lecture and 30 hours of closed laboratory.

3 credits

SONO 4055 CARDIOVASCULAR PATHOPHYSIOLOGY

Description 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, and congenital defects, among others. Requires: 30 hours of lecture and 30 hours of closed laboratory. Prerequisite: SONO 4045.

3 credits

SONO 4065 GENERAL VASCULAR SONOGRAPHY

Demonstration of arterial and venous anatomy, vascular image protocols, basic tracking techniques and transducer manipulation. Emphasis on the B-Mode Image, interpretation of color image and analysis of Doppler spectral waves. It includes the intracranial, extracranial area, the upper and lower extremities and the abdomen. Detection of cardiovascular disorders, vascular diseases and their effect on blood flow. Requires: 30 hours of lecture and 30 hours of closed laboratory.

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 4911 ULTRASOUND INTERNSHIP I

Experience aimed at developing the skills and professional competences acquired in concentration courses for the performance of sonographic procedures in general. The student will be under the direct supervision of a professor in the simulation center. Requires: 30 hours of lectures and 45 hours of closed laboratory. Prerequisite: SONO 3010.

3 credits

SONO 4912 ULTRASOUND INTERNSHIP II

Clinical experience aimed at developing and improving the professional skills acquired in the concentration and practice courses for performing sonographic procedures with emphasis on obstetrics, gynecology, pediatrics and cardiovascular. The student will be under the supervision of a qualified sonographer. It requires 180 hours of practice. Prerequisite: SONO 4911.

3 credits

SONO 4913 ULTRASOUND INTERNSHIP III

Clinical experience aimed at developing and improving the professional skills acquired in concentration and practice courses for performing sonographic procedures with emphasis on the skeletal muscular, cardiovascular system, and the superficial structures of the body. The student will be under the supervision of a qualified sonographer. It requires 180 hours of practice. Requisite: SONO 4912.

3 credits

Courses in Medical Technology (MEDT)

MEDT 4501 LABORATORY OPERATIONS I: 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 OPERATIONS II: 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 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 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

MEDT 4924 CLINICAL PRACTICE IN URINALPRÁCTICA CLÍNICA EN URINALYSIS AND PARASITOLOGY

Exposition of the knowledge acquired in the urinalysis and parasitology 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. Prerequisites: MEDT 4520 and 4585.

2 credits

Courses in Microbiology (MICR)

MICR 3211 MICROBIAL PHYSIOLOGY

Study of the structures of microorganisms and their functions with emphasis on cells prokaryotes. Analysis of the nutrition, growth and microbial metabolism processes. Emphasis on fermentation and energy production. Prerequisite: BIOL 3105.

3 credits

MICR 4010 MICROBIAL ECOLOGY

Study of the biodiversity, structure and the dynamics of the microbial populations. Analysis of the interactions of microorganisms with plants, animals and other microorganisms. Discussion of the biogeochemical cycles with emphasis on the decomposition of organic matter. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: MICR 3211.

3 credits

MICR 4505 MICROBIOLOGICAL APPLICATION TECHNIQUES

Analysis and development of laboratory skills for the management of microorganisms. Emphasis on the techniques for the study of bacteria growth and nutrition, including anaerobic. Use of basic techniques of molecular biology and genetics in microorganisms. Application of asepsis and security measures in a controlled environment. Development of a research project. Consists of 90 hours of lab. Prerequisites: MICR 3211, 4010.

2 credits

MICR 4910 PRACTICE

Application of the knowledge and skills acquired in the laboratory courses related to microbiology. The student will complete 120 hours of supervised practice. Includes an oral report of the work performed. This course must be passed with the minimum grade of C. Prerequisites: MICR 4505 and BIOL 4433.

2 credits

MICR 4955 INTEGRATION SEMINAR IN MICROBIOLOGY

Integration of the knowledge obtained in the advanced microbiology courses. Analysis of scientific articles on current topics in microbiology. Prerequisite: Have approved 30 credits of the major courses of the Bachelor's Program in Microbiology, including at least 6 credits in MICR.

1 credit

Courses in Mobile Device Programming (MOPR)

MOPR 1000 INTRODUCTION TO THE TECHNOLOGY, DEVELOPMENT AND DESIGN OF MOBILE DEVICES

Study of the basic principles of mobile technology and the problems that arise from the mobility of the devices used. Analysis of the distribution of applications or Web Services. Application of the principles of design for mobile devices. Basic programming in scripting languages in applications for mobile devices. Requires time in a virtual open lab.

3 credits

MOPR 1201 DEVELOPMENT OF MOBILE APPLICATIONS ANDROID 1

Discussion of the architecture, the organization and the way the Android operating system functions. Use of the run time system, bookstore, and virtual machine and identification of components of the applications platform. Installation, configuration and application of the Android development system based on the Eclipse tool. Basic programming in Java language. Application of the programming, verification and publication procedures of Android applications. Requires time in a virtual open lab. Prerequisite: COMP 2120. Corequisite: MOPR 1000.

3 credits

MOPR 1202 DEVELOPMENT OF MOBILE APPLICATIONS ANDROID 2

Advanced programming in Java language. Development of applications based on the inherent structures of the Android platform. Use and application of packages and bookstores of its programmatic interface. Analysis of the development cycle of Android applications, content suppliers and data management. Use of the multimedia and location functions, among others. Requires time in a virtual open lab. Prerequisite: MOPR 1201.

3 credits

MOPR 2001 DEVELOPMENT OF MOBILE APPLICATIONS APPLE 1 IOS

Discussion of the architecture, the organization and the way that the operating system Apple iOS functions. Use of its run time system bookstore, and virtual machine and identification of components of the applications platform. Basic programming in the Objective-C language. Installation, configuration and application of the development system Apple iOS based on XCode. Application of programming procedures, verification and publication of applications of Apple iOS. Requires time in a virtual open lab. Prerequisites: MOPR 1000 and COMP 2315.

3 credits

MOPR 2002 DEVELOPMENT OF MOBILE APPLICATIONS APPLE 2 IOS

Advanced programming in Objective-C language. Development of applications based on the inherent structures of the Apple platform iOS such as the graphic system and the programming components. Use and application of packages and bookstores of its programmatic interface. Analysis of the development cycle of applications, content suppliers and data management. Use of multimedia and location functions, and other advanced functions. Requires time in a virtual open lab. Prerequisite: MOPR 2001.

3 credits

MOPR 2101 DEVELOPMENT OF MOBILE APPLICATIONS OF WINDOWS PHONE 1

Discussion of the architecture, the organization and the way that the operating system Phone Windows functions. Use of its run time system, bookstore, and virtual machine and identification of components of the applications platform. Programming in languages C# and XAML. Installation, configuration and application of the development system Phone Windows based on those languages. Application of programming procedures, verification and publication of applications of Phone Windows. Requires time in a virtual open lab. Prerequisites: MOPR 1000 and COMP 2315.

3 credits

MOPR 2102 DEVELOPMENT OF MOBILE APPLICATIONS WINDOWS PHONE 2

Advanced programming in languages C# and XAML. Development of applications based on the inherent structures of the platform Phone Windows, such as the graphical system and the programming components. Use and application of packages and bookstores of the programmatic interface. Analysis of the development cycle of applications Phone Windows, content suppliers and data management. Use of multimedia and location functions and other advanced functions. Requires time in a virtual open lab. Prerequisite: MOPR 2101.

3 credits

MOPR 2970 SEMINAR IN PROGRAMMING OF MOBILE DEVICES

Development of a mobile application and placement in some distribution center at the international level. Requires additional time in a virtual open lab. Prerequisites: MOPR 1202, 2001, 2101 and authorization of the director of the department.

3 credits

Courses in Music (MUSI)

MUSI 0703, 0704 FUNDAMENTALS: VOCAL I, II

Review of the fundamentals of vocal performance, such as posture, relaxation, the support and control of breathing, the production of sound, diction and the reading of music. Designed for students with little or no experience in the field of music. Prerequisite: Take a placement test or audition. Requires 45 hours of lecture-lab.

3 credits per course

MUSI 0713, 0714 FUNDAMENTALS: INSTRUMENTS I, II

Review of the fundamentals of instrumental performance: posture, relaxation, the support and control of breathing, the production and support of sound, the techniques and the rudiments of percussion, and the reading of music. Designed for students with little or no experience in the field of music, assigned to the course by audition or by a placement test. Prerequisite: Pass a placement test or audition. Requires 45 hours of lecture-lab.

3 credits per course

MUSI 0723, 0724 FUNDAMENTALS: STRINGS I, II

Review of the fundamentals of string instrument performance, such as posture, relaxation, the use of the arc, the production of sound, the positions, the refining and the reading of music. Designed for students with little or no experience in the field of music. Prerequisite: Pass a placement test or audition. Requires 45 hours of lecture-lab.

3 credits per course

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 1111 RUDIMENTS AND AUDITORY TRAINING I

Development of auditory skills in sight-reading and musical reading, musical writing, dictation, the principles of the rhythm, notes, tones, intervals, scales and triads. Course for students with little or any experience in the field of music. The minimum grade to approve this course will be equivalent to C. Prerequisite: Passing a placement test. Requires 15 hours of lecture and 30 hours of lab in auditory training and reading.

2 credits

MUSI 1112 RUDIMENTS AND AUDITORY TRAINING II

Development of auditory skills and sight-singing focused towards the reading and writing of music, the principles of rhythm, musical figures and tones, the intervals, the scales and the triads. Course for students

with little or any experience in the field of music. The minimum grade to approve this course will be C. Prerequisite: MUSI 1110 or pass an audition with 70%. Requires 15 hours of lecture and 30 of lab.
2 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 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169: VOCAL COACHING I, II, III, IV, V, VI, VII, VIII, IX, X

Performance of the assigned repertoire following the evaluation criteria of the Jury and Recital Examinations. Includes a repertoire selected for its technical and musical difficulty in accord with the academic progress of the student. Designed for students in the Bachelor's degree in Music whose main instrument is voice. Each course is a continuation of the previous level.

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 1401 THEORY AND SIGHT-READING

Use of sight-reading and musical theory, with emphasis on the development of auditory skills, reading, rhythmic perception, intonation and dictation. Includes the primary study of the formation and connection of chords, their written and auditory identification, analysis and composition. The minimum grade to approve this course will be equivalent to C. Prerequisite: Passing a placement test or MUSI 1112. Requires 15 hours of lecture and 30 hours of lab in auditory training and reading.

2 credits

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 2011, 2012, 2013, 2014 CHAMBER ENSEMBLE AND VOCAL INSTRUCTION I, II, III, IV

Preparation and performance of a repertoire that culminates in the musical work production for vocal ensemble with instrumental accompaniment. Intensive individual classes to examine areas of difficulty in the technique of the instrument (diction, sight reading, reading practice, performance). Representative literature of different styles and historical periods will be used. Available for students of the baccalaureate or high school level with some experience in chamber productions with instrumental accompaniment. Consists of vocal ensembles, or combination of instruments and vocal. Prerequisite: Audition and authorization of the instructor.

2 credits per course

MUSI 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098 CHAMBER ENSEMBLE I, II, III, IV, V, VI, VII, VIII

Review of technical and interpretative skills using a repertoire for diverse instrumental and vocal combinations. Participation in individual practices and classes that facilitate musical performance according to the level of technical and musical development of the student. Requires audition and the authorization of the professor.

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

MUSI 3131, 3132, 3133 POPULAR MUSIC WORKSHOP II, III, IV

Exploration of the repertoire in diverse styles for ensembles of pop music and the development of technical and interpretative skills. Includes review of practice techniques, performance of several genres, arrangements, and improvisation. Available for students with a major in music and in other disciplines. Prerequisite: Pass an audition and obtain consent of the instructor. Requires additional hours of practice.

1 credit per course

MUSI 3975 SPECIAL TOPICS

Analysis and discussion of topics related to music that combine new ideas and knowledge not included in regular courses.

1-6 credits

MUSI 4600 FOUNDATIONS OF AUDIO-RECORDING

Experimentation with resources and techniques of recording, edition, production and mastering of audio. Includes the examination of acoustic materials for the design of facilities, theories, use and location of

microphones, applications and recording apparatuses used in a musical production. Prerequisite: MUED 4436.

3 credits

MUSI 4901 RECITAL II

Preparation and performance of a public recital. Includes selection of a representative repertoire of different historical periods, analysis of composition styles and interpretation. Prerequisites: MUSI 4900 and authorization of the faculty of applied music. Requires approval of a faculty jury before the recital.

2 credits

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 I

Exploration of repertoire in diverse styles for sets of pop music and the development of technical and interpretative skills. Includes examination of practice techniques, performance of pieces of several genres, adjustment, and improvisation. Available for students with a major in music and for other disciplines. Prerequisite: Pass an audition and obtain consent of the instructor. Requires two hours of practice weekly.

1 credit

MUED 3301, 3302 STRATEGIES AND TECHNIQUES I, II: GENERAL-VOCAL

Analysis of foundations of vocal technique and their application in teaching of vocal-choral. Examination of the fundamental techniques of execution and strategies of teaching in agreement with the student's level of development. Integration of the study of cultural and musical influences in the development of the choral repertoire.

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 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 1091 FIELD EXPERIENCES IN MUSIC EDUCATION I

Exposition of students to the educational system with emphasis on the music program. Selected group or individual experiences in schools with Musical Education programs. Requires a minimum of 10 hours in the educational scenario and 10 hours of meetings with the professor. Must be approved with a minimum grade of B.

1 credit

MUED 2080 FIELD EXPERIENCES IN MUSIC EDUCATION II

Field experiences through visits to schools with Musical Education programs, in order to observe, reflect and analyze the environment, the administration the classroom, the teaching strategies, the participation and the management of time. Requires 15 school hours, a minimum of 15 hours in the educational scenario and the approval of the course with a minimum grade of B. Prerequisite: MUED 1091. Corequisite: MUED 4401.

2 credits

MUED 3080 CLINICAL EXPERIENCES IN MUSIC EDUCATION

Clinical experiences as a student-teacher in a school with Musical Education programs. Emphasis on students' professional development and the use of effective teaching strategies to work with small groups and then with the whole group. Requires 15 school hours, a minimum of 25 hours in the educational scenario and the approval of the course with a minimum grade of B. Prerequisites: MUED 2080 and authorization of the Coordinator or Supervisor of Practice Teaching. Corequisite: MUED 4411.

2 credits

MUED 3301, 3302 STRATEGIES AND TECHNIQUES I, II: GENERAL-VOCAL

Analysis of foundations of vocal techniques and their application in teaching of vocal-coral. Review of the fundamental techniques of performance and teaching strategies in agreement with the student's level of development Integration of the study of cultural and musical influences in the development of the choral repertoire.

2 credits per course

MUED 3303 VOCAL STRATEGIES AND TECHNIQUES III: DICTION

Application of the basic rules of pronunciation of the Italian, German, French, Spanish and Latin languages. Analysis of the foundations of the vocal technique and the vocal-coral teaching methods applied to a repertoire of different levels, historical periods and languages. Study of the international phonetic alphabet and its implications in diction.

2 credits

MUED 3330 STRATEGIES AND TECHNIQUES OF MUSICAL INSTRUMENTS I: STRING

Review of theoretical and practical problems pertinent to the teaching of string instruments. Analysis of fundamental performance techniques and teaching strategies in harmony with student development in each school level. Identification of useful technological resources in instructional design

2 credits

MUED 3331 STRATEGIES AND TECHNIQUES OF MUSICAL INSTRUMENTS II: PERCUSSION

Review of theoretical and practical problems pertinent to the teaching of percussion instruments. Analysis of fundamental performance techniques and teaching strategies in harmony with student development in each school level. Integration of the study of cultural and musical influences in the development of rhythms and percussion instruments used in concert music, march and ethnic music. Identification of useful technological resources in instructional design.

2 credits

MUED 3332 INSTRUMENTAL STRATEGIES AND TECHNIQUES III: METALS

Review of theoretical and practical problems pertinent to the teaching of metals. Analysis of fundamental performance techniques and teaching strategies in harmony with student development in each school level. Identification of useful technological resources in instructional design.

2 credits

MUED 3333 INSTRUMENTAL STRATEGIES AND TECHNIQUES IV: WIND-WOOD

Review of theoretical and practical problems pertinent to the teaching of the wind-wood instruments. Analysis of fundamental performance techniques and teaching strategies in harmony with student development in each school level. Identification of useful technological resources in instructional design.

2 credits

MUED 4401 ELEMENTARY METHODS: THE TEACHING OF MUSIC

Analysis of learning theories and the applicable methodologies in the teaching of music. Emphasis on exposure to rhythmic and creative experiences, childhood songs and the melody flute, using the Orff, Kodály, Suzuki and Dalcroze methods. Includes the preparation and evaluation of educational materials, performance of tasks and writing of plans. A minimum of B is required to pass this course. Prerequisites: EDUC 2032, 2870, MUSI 4500, MUED 3330, 3331, or MUED 3301-3302 and courses of Applied Music up to level 2 - -2. Corequisite: MUED 2080.

3 credits

MUED 4411 SECONDARY METHODS: THE TEACHING OF MUSIC

Exposure to and discussion of the methods and philosophy for the teaching of music. Includes the study of the characteristics of the process of: planning, evaluation, assessment, preparation and evaluation of topics and materials of the music curriculum at the secondary level. A minimum of B is required to pass this course. Prerequisite: MUED 4401. Corequisite: MUED 3080.

3 credits

MUED 4436 TECHNOLOGY IN MUSIC EDUCATION

Evaluate technological resources and strategies to integrate technology in music education. Emphasis on the development of computer skills with keyboard MIDI. Includes search skills, identification of the use of reliable sources of information, the use of applications to record and edit musical sequences in several formats in addition to programs to manipulate complex musical notations. The operating systems (MSWindows, MacOS, and UbuntuLinux, among others) will be used, in computers with access to the Web.

3 credits

MUED 4915 STUDENT TEACHING IN MUSIC: GENERAL-VOCAL

Clinical experience as a student-teacher in a classroom or other educational settings specialized in general-vocal music, under the direct supervision of a certificated cooperating teacher and a university supervisor. Students will perform the functions of the regular teacher and will demonstrate the competencies acquired throughout their training program. Students must meet all the requirements for admission to Practice Teaching as stipulated in the current General Catalog. Students should apply four weeks before the end of the regular semester prior to the semester in which they expect to do their practice teaching.

4 credits

MUED 4916 STUDENT TEACHING IN MUSIC: INSTRUMENTAL

Clinical experience as a student-teacher in a classroom or other educational settings specialized in instrumental music, under the direct supervision of a certificated cooperating teacher and a university supervisor. Students will perform the functions of the regular teacher and will demonstrate the competencies acquired throughout their training program. Students must meet all the requirements for admission to Practice Teaching as stipulated in the current General Catalog. Students should apply four weeks before the end of the regular semester prior to the semester in which they expect to do their practice teaching.

4 credits

Courses in Natural Sciences (NASC)

NASC 4970 INTEGRATING SEMINAR

Integration of the knowledge obtained in the science courses through the oral and written presentation of a creative work of a contemporary theme in the area of specialty of the student. Rating: P / NP. Requisite: Have approved 18 credits of concentration.

1 credit

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: ITEC 1100.

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 1111 FUNDAMENTALS OF NURSING

Introduction to the nursing profession and its historical evolution. Emphasis on the principles of the conceptual frame and the concepts of the Program. Includes the ethical, legal and moral aspects based on the practice standards. Discussion of the nursing process for adult care with common interferences in the functional health patterns that support physical processes. Integration of the principles and basic concepts of growth and development psycho- physiological aspects, considering cultural diversity within a safe environment. Corequisites NURS. 1112, 1130.

4 credits

NURS 1112 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 physical functioning. Beginning of the development of clinical skills to perform in the areas of competence as care providers. Requires a total of 90 hours of laboratory in diverse scenarios. Corequisite: NURS 1111.

2 credits

NURS 1130 PHARMACOLOGICAL ASPECTS

Discussion of relevant aspects of the study of the pharmacology including the biochemical, physiological, research and legal aspects. Use of the principles and skills of posology. Application of the nursing process in medication administration. Requires 45 hours of lecture and 30 hours of open presential or virtual lab. Corequisite: NURS 1111.

3 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 1111, 1112, 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. Requires a total of 90 hours of clinical practice in diverse scenarios. Prerequisites: NURS 1111, 1112, 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, physiopsychological 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. Prerequisite: NURS 1231. Corequisites: NURS 2142, 2233.

3 credits

NURS 2142 PRACTICE IN MATERNAL-NEONATAL CARE

Application of the nursing process using the functional patterns of health in the care of clients during pregnancy, childbirth and pos childbirth. The care of the normal new born is included during the early neonatal stage. Requires a total of 60 hours of clinical practice in diverse scenarios. Prerequisites: NURS 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. Requires a total of 90 hours of clinical practice in diverse scenarios. 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. Corequisites: NURS 2352, 2361, 2362, 2970.

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 clinical practice in diverse scenarios. Prerequisite: NURS 2234. Corequisites: NURS 2351, 2361, 2362, 2970.

2 credits

NURS 2361 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, neuropsychology, ethical-legal, research and communication concepts. Prerequisites: NURS 2233, 2141. Corequisites: NURS 2351, 2362 and 2970.

3 credits

NURS 2362 PRACTICE OF PSYCHOSOCIAL CARE

Application of the nursing process, theoretical models, principles and concepts in psychosocial care of the adult. Practice of the skills of therapeutic communication in interventions. Requires a total of 60 hours of clinical practice in diverse scenarios. Prerequisites: NURS 2142, 2234. Corequisites: NURS 2352, 2361, 2970.

2 credits

NURS 2970 TRANSITION SEMINAR

Discussion of essential aspects of student transition to the labor environment. Analysis of the trends and controversies that impact health care. Review of the ethical-legal, technological and scientific implications, professional values and social and economic influences in the exercise of the profession. Development of strategies for taking the board examination. Prerequisites: NURS 2233, 2141. Corequisites: NURS 2351, 2352, 2361, 2362.

1 credit

NURS 3000 PRINCIPLES OF ROBOTIC NURSING

Study of the general principles of nursing related to the surgical procedures assisted by robotic technology. The basic concepts of surgery assisted by robot are included. Application of the roles of nursing professionals in the process of assisting the doctor in different robotic surgeries.

3 credits

NURS 3100 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. Emphasis on health education, leadership and management that facilitate dealing with changes in the health care systems and the nursing practice. Corequisites: NURS 3120 and 3115, or have an Associate Degree in Nursing.

3 credits

NURS 3115 INTRODUCTION TO THE NURSING RESEARCH PROCESS

Discussion of the research process and the ethical legal considerations. Application and evaluation of the practice based on the evidence for health problem solving. Research assessment for the development of the best practices in the profession. Corequisites: NURS 3100, 3120.

3 credits

NURS 3120 HEALTH ASSESSMENT

Application of knowledge and skills for a comprehensive health assessment of the client throughout the life cycle. 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 closed presential lab. Corequisites: NURS 3100, 3115

4 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 3100, 3115, 3120. Corequisites: NURS 3140, 4911.

4 credits

NURS 3250 ELECTRONIC DOCUMENTATION

Administration of electronic patient files that demonstrate their health condition. For this, the nursing process will be used. Emphasis on the legal aspects for the protection and security of the health registries.

3 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 4911 PRACTICE IN PROFESSIONAL INTERVENTIONS DURING THE LIFE CYCLE

Application of the nursing process with emphasis on therapeutic and diagnosis reasoning for decision making in professional interventions. Emphasis on the levels of prevention for the management of human responses in the most common chronic dysfunctions. Integrated application of the principles and concepts of communication, health education, ethical-legal, research, leadership and management. Requires a total of 45 hours of clinical practice with the pediatric client and 45 hours with the adult client in diverse scenarios. Prerequisites: NURS 3100, 3115, 3120. Corequisites: NURS 3140 and 3190.

3 credits

NURS 4914 PRACTICE IN NURSING CARE TO THE FAMILY AND COMMUNITY

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 in diverse scenarios. 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 clinical practice in diverse scenarios. Prerequisite: NURS 4914, in case the student is a candidate for graduation in the current academic term, this course may be offered concurrently with NURS 4180 and 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 I

Development of skills using the computer keyboard. Introduction to the basic functions of the word processing program in use. Development of basic skills for speed and accuracy and their application to the creation of documents. Importance given to the basic techniques of proofreading. Requires 60 hours of lecture-lab.

4 credits

OMSY 1102 INFORMATION PROCESSING II

Development of basic skills for speed and accuracy. Application of these skills when processing business correspondence in the computer. Development of skills in the production of business documents of frequent use in the office. Requires 60 hours of lecture-lab. Prerequisite: OMSY 1101.

4 credits

OMSY 2000 PRODUCTION OF BUSINESS DOCUMENTS

Complex document production applying advanced functions of the word processing program in use. Emphasis on the quality of documents, development of basic skills at optimum levels and proofreading. Requires 60 hours of lecture-lab. Prerequisite: OMSY 1102.

4 credits

OMSY 2040 ELECTRONIC SPREADSHEETS

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. Requires 45 hours of lecture-lab. Prerequisite: OMSY 1101 or GEIC 1010.

3 credits

OMSY 2060 ADMINISTRATION OF DOCUMENTS AND DATABASES

Discussion of the different systems of receiving, classifying, processing, control, filing, and disposition of documents. 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 electronic database program. Requires 60 hours of lecture-lab. Prerequisite: OMSY 1101.

4 credits

OMSY 2233 INFORMATION PROCESSING IN OFFICES OF LEGAL AFFAIRS

Discussion of the terminology of a legal nature and of ethical aspects related to the processing of information in of legal affairs offices. Analysis of the procedures for preparing and processing documents used in courts and administrative agencies, among others. Study of legal norms and essential aspects of research in formal law sources. Creation of formats and legal document preparation. Requires 60 hours of lecture-laboratory. Prerequisite: OMSY 1102.

3 credits

OMSY 2240 INFORMATION PROCESSING IN OFFICES OF HEALTH SERVICES

Discussion of terminology of legal 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. Production of documents that are used in health service offices. Requires 45 hours of lecture-lab. Prerequisite: OMSY 1101.

3 credits

OMSY 2250 HUMAN RESOURCES IN THE ORGANIZATIONAL ENVIRONMENT

Study of the importance of human resources in the organizational environment. Emphasis on the aspects of personality and professional conduct to perform effectively in the office environment. Analysis of the techniques of team work, interpersonal relations, ethics in the office, communication channels, motivation, employment satisfaction, performance, professional development and organizational culture.

3 credits

OMSY 2400 MEDICAL TERMINOLOGY

Study of the medical vocabulary by means of the identification of prefixes, suffixes and combination of words to understand the different systems that make up the structure of the human body and its respective functions and diseases.

3 credits

OMSY 2500 LEGAL AND ETHICAL ASPECTS IN MEDICAL INFORMATION

Analysis of the state and federal laws and regulations that apply to medical information and to the administration of medical records. Application of the ethical and legal principles in decision making and in the solution of situations related to health care.

3 credits

OMSY 3000 HEALTH SERVICES BILLING

Study of the terminology for the invoicing of health services. Application of the fundamental concepts of manual and electronic invoicing. Requires 45 hours of lecture-laboratory. Prerequisite: OMSY 2240 or OMSY 2400 and 2500.

3 credits

OMSY 3030 BUSINESS COMMUNICATION 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. Prerequisites: GESP 1102 and OMSY 1101 or GEIC 1010.

3 credits

OMSY 3040 BUSINESS COMMUNICATION IN ENGLISH

Development of oral and written business communication skills in English. Writing and revision of business documents. Application of language rules and simple oral practices. Prerequisites: GEEN 1101 or equivalent and OMSY 1101 or 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 3080 OFFICE ADMINISTRATION

Discussion of the administrative procedures, the global market in companies, self-owned companies, as well as the impact of technology and its application to office systems. Analysis of the tasks and responsibilities of office professionals and their impact on productivity. Prerequisite: OMSY 1102.

3 credits

OMSY 3430 ELECTRONIC CODIFICATION OF DIAGNOSES AND PROCEDURES

Classification and codification of medical diagnoses and procedures with the use of a computerized program. Application of medical insurance regulations in electronic invoicing. Emphasis on audits of medical claims. Prerequisite: OMSY 3000.

3 credits

OMSY 3440 ADMINISTRATION OF THE ELECTRONIC MEDICAL RECORD

Development of skills to administer, collect, process, keep and recover medical data of patients by means of the use of a computerized program. Application of the laws of confidentiality and privacy in the administration of electronic medical records. Prerequisite: OMSY 2500.

3 credits

OMSY 3500 INTERACTIVE BUSINESS COMMUNICATION IN ENGLISH

Development of oral communication skills and the effective use of enterprise vocabulary. Oral practice in simulations of office situations with the goal of improving pronunciation of the English language and reducing communication barriers. Technological resources will be used to develop and reinforce oral communication skills. Prerequisite: GEEN 1103 or its equivalent.

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 foundations of telecommunications and their application in the enterprise environment. Development of the basic skills necessary for the administration of telecommunications technology. Study of the ethical principles and security in the administration of telecommunications. Requires 45 hours of lecture-lab. Prerequisite: OMSY 2000.

3 credits

OMSY 4910 PROFESSIONAL PRACTICUM

Direct experience by means of the performance of tasks, with administrative support, in authorized practice centers. Requires 180 hours of practice. Prerequisites: Have passed the OMSY courses at the 3000 level. Corequisite OMSY 4970.

3 credits

OMSY 4920 DESIGN AND ADMINISTRATION OF TRAINING

Development of the skills for giving training within the role of the administrative assistant in diverse organizational scenarios.

3 credits

OMSY 4970 INTEGRATION 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. Prerequisite: Have passed the OMSY courses at the 3000 level. Corequisite: OMSY 4910.

3 credits

Courses in Optical Science Technology (OPST)

OPST 1003 FUNDAMENTALS OF OPTICS

Description of the concepts related to the ophthalmic conditions and the lenses that correct these refracting problems. Study of the types of lenses, the frames, the curvature and the interpretation of the prescription. Discussion of the laws that regulate the practice of optics in Puerto Rico and other jurisdictions.

2 credits

OPST 1010 PRINCIPLES OF BIOLOGY

Discussion of the basic concepts of Biology. Emphasis on the anatomy and the operation of the tegumentary, nervous, endocrine and immunological systems of the human being. Requires 30 hours of lecture and 30 hours of lab.

3 credits

OPST 1011 OPHTHALMIC MATERIALS I

Introduction to the field of ophthalmic optics and the functions of the laboratory technician. Study of the history, the optical terminology, nomenclature, graphs, optical charts and the basic use of equipment. Practice in the standard alignment of frames, until the final production of some lenses of simple vision. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: OPST 1003.

3 credits

OPST 1012 OPHTHALMIC MATERIALS II

Study of ophthalmic materials with emphasis on the thickness of the lens. Practice in the assembly of lenses, the position and the function of bifocal and multifocal lenses, as well as the appropriate administration of the equipment and its effects. Includes practice and procedures for finishing points. Study of drilling and assembly techniques for lenses in borderless frames and the use of finishing equipment. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: OPST 1011.

3 credits

OPST 1020 ANATOMY AND PHYSIOLOGY OF THE EYE

Fundamental study of 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: OPST 1010.

3 credits

OPST 1111 FUNDAMENTALS OF PHYSICS I

Description of the general concepts of physical sciences related to the area of optical sciences. Application of the concepts of physics in the practice scenario of optical sciences.

3 credits

OPST 1112 FUNDAMENTALS OF PHYSICS II

Study of the phenomena related to light. Discussion of inherent mathematical principles inherent to the effects of light on the visual system. Emphasis on the physical concepts necessary for the study of optical phenomena. Prerequisites: OPST 1010, 1011.

3 credits

OPST 2000 LEGAL AND ETHICAL CONSIDERATIONS

Discussion of the code of conduct and principles related to human dignity in the optician profession. Study of the laws and regulations that apply to Puerto Rico and other jurisdictions.

2 credits

OPST 2004 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, corneal topography and the design of lenses. Description of the use of the keratometer and the slit lamp. Discussion of optical principles in the design of contact lenses. Discussion on optical principles and types of contact lenses. Prerequisites: OPST 1020. Corequisites: OPST 1002, 2010, 2020.

2 credits

OPST 2005 CONTACT LENSES II

Description on the relation between the cornea and the lens. Includes the adjustment of the soft contact lens, and the therapeutic and cosmetic adjustment. Assessment and identification of signs and symptoms of keratoconus. Use of the keratometer and the slit lamp. Prerequisite: OPST 2004. Corequisites: OPST 2103, 2911, 2913. Requires 30 hours of lecture and 30 of lab.

3 credits

OPST 2010 PRESCRIPTION DISPATCH

Study of professional ethics and the responsibility in the practice of dispatching prescription. Application of the appropriate techniques for the adjustments of plastic and metal frames. Development of strategies for solving common problems in the practice and the necessary skills at the prescription table. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: OPST 1001.

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 examinations. Discussion of rehabilitation strategies for improving the visual function and assisting clients with subnormal vision to perform their daily activities. Prerequisite: OPST 1020.

3 credits

OPST 2021 ENTREPRENEURIAL DEVELOPMENT

Introduction to the basic concepts of entrepreneurialism. Discussion of the legal, financial and professional requirements for the design and implementation of a business plan in the field of optics.

2 credits

OPST 2103 OPHTHALMIC MATERIALS III

Introduction to the methods and procedures for edging lenses with a focal point. Use of polishing machines, the marking, blocking and the generator. Application of the removal of layout and other pertinent tools. Practice in the techniques of repair of frames or glasses and the use of the furnace for hardening of lenses. Prerequisites: OPST 1002, 2010. Requires 15 hours of lecture and 45 of lab.

2 credits

OPST 2913 SUPERVISED PRACTICE

Clinical experience supervised by a licensed optician or optometrist. Application of techniques and knowledge acquired, such as: operational aspects of the optical laboratory and basic technical related to the manufacture of ophthalmic lenses and prescription dispatch. Application of the ethical-legal principles when carrying out your role. Requires 240 hours of supervised clinical practice. Prerequisites: OPST 1002, 2021.

4 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 Assistant (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. Requires 30 hours of lecture and 45 hours of lab. 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 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 or 1512.

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

PHYS 3500 PHYSICS FOR AVIATION

Application of the principles and concepts of physics to the study of aviation sciences. Emphasis on the concepts of Newtonian mechanics, work and energy, fluids, thermodynamics, electronics and circuits, dynamics of flight and introduction to aerodynamics. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: MATH 1500 or 1512.

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 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 3050 ETHICS, RELIGION AND POLITICS

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 modern world; international alliances and conflicts; some of the global challenges faced by the world today.

3 credits

POLS 3170 INTERNATIONAL CONFLICTS

Analysis of the world-wide and historical phenomenon of war and international conflicts. Emphasis on intervention strategies and the theories on war beginning from antiquity to the present time. Includes the study of the effect of war on the economy.

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 modern 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 3610 RELATIONS BETWEEN THE UNITED STATES AND PUERTO RICO

Analysis of the changing forces that have had an impact on the relations between the United States and Puerto Rico since 1898, with emphasis on factors like: the economic and political relations, federal aid, the Law of Federal Relations and its impact, and the preparation of the Puerto Rican budget.

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 PUBLIC 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 3820 GOVERNMENTAL MANAGEMENT

Analysis of the fundamental elements of administration of governments: knowledge of the organization and the functions the state and municipal governments. Includes the fiscal policy and other related administrative processes.

3 credits

POLS 3910 ELECTORAL PROCESSES

Analysis of the diverse ways to choose governments at the world-wide level. Study of electoral laws, and processes and international observers. Emphasis on the historical cases of Puerto Rico, the United States, Europe and Latin America. Includes the new electoral processes in Africa and Asia.

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

Analysis of the economic, social, ecological and commercial effects in the evolution of the contemporary global policy since the Cold War.

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 4300 PUBLIC POLICY AND LAWS

Review of the theoretical and practical aspects of the relation between the development of social justice and human rights in society. Study of the status of laws legislated by governments.

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 SEMINAR ON POLITICAL RESEARCH

Development of a research project with an integrating vision of the theories of the disciplines. An oral and written presentation of a 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 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 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 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

Discussion of the historical origins of psychology. The subjects to be studied include the biological bases of conduct, development and human growth, human sexuality, personality, psychopathology and social psychology.

3 credits

PSYC 1052 GENERAL PSYCHOLOGY II

Description of the principles and the basic methods of psychology and its relation to the neurosciences applied to conduct and the psychological processes. Includes the discussion of subjects, such as sensation, perception, consciousness, thought, memory, intelligence, learning, motivation and emotion. Prerequisite: PSYC 1051

3 credits

PSYC 2001 WRITING IN PSYCHOLOGY

Application of the skills of bibliographical research and writing. Includes the writing of monographs, review of scientific literature, critical analysis and reports of scientific research using the American Association of Psychology (APA) publishing style.

3 credits

PSYC 2010 DEVELOPMENTAL PSYCHOLOGY

Review of the physical, cognitive and psycho-social processes of development, from conception to death. Prerequisite: PSYC 1052.

4 credits

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

Analysis of the conditions and fundamental principles of the process of learning derived from scientific research. Emphasis on classic conditioning, operating conditioning, cognitive psychology of learning, motivation and emotion. Includes the study of individual differences. Prerequisite: PSYC 1052.

3 credits

PSYC 3113 PHYSIOLOGICAL PSYCHOLOGY

Study of the relation between behavior, physiological processes and the nervous system. Emphasis on theories and empirical findings related to physiological psychology and neuroscience. Prerequisites : PSYC 1052 and BIOL 1006.

3 credits

PSYC 3144 MOTIVATION AND EMOTION

Investigation of the theories and studies related to motivation and emotion, as well as their effect in human behavior.

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

Review of the main approaches and psychotherapeutic models. Emphasis on the basic skills of counseling and psychotherapy, their application in the diverse clinical-therapeutic scenarios and their ethical aspects, Includes the models of individual, group and family therapy.

3 credits

PSYC 3300 SOCIAL PSYCHOLOGY

Analysis of the development of social psychology considering the social I, the social perception, social influence, the social relations and their application to the reality of the social context. Prerequisite: PSYC 1051.

3 credits

PSYC 3313 INTRODUCTION TO INDUSTRIAL-ORGANIZATIONAL PSYCHOLOGY

Study of the origins of Industrial-Organizational Psychology as a scientific and application discipline. Emphasis on the subjects related to psychology of the human resource, organizational psychology and the labor environment.

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, principles, methods and controversies in the modification of conduct. Emphasis on the design of programs for conduct modification. Includes simulations and analysis of cases. Prerequisite: PSYC 3100.

3 credits

PSYC 4103 COMMUNITY PSYCHOLOGY

Investigation of the methods and theoretical models of community psychology and human behavior from a group perspective. Emphasis on practical experience to develop intervention skills and community evaluation. Includes 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

Analysis of the concept of the psychology of deviant or abnormal behavior. Emphasis on the historical background, the pertinent theories and the classification of conditions according to the Manual of Diagnosis and Statistics of current mental disorders. Includes the discussion of cases in which the different types of behavioral disorders appear. Prerequisite: PSYC 2010.

3 credits

PSYC 4234 PSYCHOLOGY OF PERSONALITY

Analysis of the diverse approaches related to personality from a historical perspective. Emphasis on the analysis of the role assigned to personality as an object of study and treatment. Prerequisite: PSYC 2010

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 135 work-hours of practice or assigned research, with prior authorization of the professor and the department director.

3 credits

PSYC 4971 INTEGRATION SEMINAR

Integration of the concepts, theories and principles of psychology as a science. Includes a work of original research of a relevant subject in the field of psychology, presented in written and oral form. The research will be presented according to the criteria of the "American Psychological Association" (APA). Prerequisites: have approved 50 credits of the major in psychology courses. The authorization of the director of the department or his representative must be obtained.

3 credits

Courses in Psychosocial Human Services (HUSE)

HUSE 3010 INTRA-FAMILY VIOLENCE

Analysis of the concept of intra-family violence as a social problem and a crime. Emphasis on the following aspects of intra-family violence: couple relations, mistreatment of minors, mistreatment of the elderly, mistreatment of handicapped and different people, and mistreatment of mascots or domestic animals. Evaluation of the causality factors and their emotional, physical, psychological and legal repercussions in the victim as well as in the perpetrator. Identification of prevention, intervention and rehabilitation alternatives.

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, PROFESSIONAL AND LEGAL ASPECTS IN PSYCHOSOCIAL SERVICES

Study of the ethical norms in offering psycho-social human services. Discussion of the universal ethical principles in the social sciences with their related professional and legal explications.

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 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 1101, 1110, 1125.

1 credit

RATE 1101 BIOLOGY AND RADIOGRAPHIC ANATOMY I

Introduction to the basic concepts of Biology such as the cellular, genetic and physiological aspects of development. Study of the fundamental aspects of the skeletal, muscular, nervous and sensorial systems of the human body from the anatomical and physiological point of view. Four hours of lecture. Prerequisite: be admitted to the Radiological Technology program. Corequisites: RATE 1100, 1110, 1125. Requires a total of 60 class hours. Must be passed with a minimum grade of C.

4 credits

RATE 1102 BIOLOGY AND RADIOGRAPHIC ANATOMY II

Study of the endocrine, reproductive, cardiovascular, lymphatic, immunological, excretory, respiratory and digestive systems of the human body from the anatomical and physiological point of view. Four hours of lecture. Prerequisite: RATE 1101. Corequisites: RATE 1221, 1230, 2911. Requires a total of 60 class hours. Must be passed with a minimum grade of C.

4 credits

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, 1101, 1110.

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. Corequisites: RATE 1102, 1230, 2911.

2 credits

RATE 1230 PRINCIPLES OF RADIOGRAPHIC EXPOSURE 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 1100, 1110, 1125. Corequisites: RATE 1102, 1221, 2911.

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. Corequisite: 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 1102, 2080, 2222, 2231, 2913.

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 1102, 2080, 2210, 2222, 2913.

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 2912, GEMA 1200. Corequisites: RATE 1102, 2080, 2210, 2222, 2913.

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 1102, 2080, 2210, 2222, 2231, 2913. 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 1102, 1221, 1230.

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 1102, 1221, 1230, 2911. 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.

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 Real Estate (REAL)

REAL 2500 REAL ESTATE ECONOMICS

Application of the theory and economic principles in the real estate market. Analysis of the impact of socioeconomic changes, demographic trends, zoning, and government regulations on demand, supply, and real estate values and prices. Prerequisite: MAEC 2212.

3 credits

REAL 2600 LEGAL PRINCIPLES OF REAL ESTATE

Discussion of legal and regulatory principles in the practice of real estate. Includes those related to the legal business of real estate, such as: subsidies and taxes of immovable property in municipal, state and federal jurisdictions.

3 credits

REAL 2700 OBLIGATIONS AND CONTRACTS IN REAL ESTATE

Discussion of contracts and the principle obligations that are used in the legal aspects of real estate. Analysis of the implications in the mortgage market and in trusts. Prerequisite: REAL 2600.

3 credits

REAL 3800 REAL ESTATE FUNDING

Analysis of the basic principles that govern mortgage financing in Puerto Rico and financings with government insurances and securities. Includes the study of the laws and regulations that protect the consumer and those that regulate house subsidies. Prerequisite: FINA 3500.

3 credits

REAL 3900 ADMINISTRATION PRINCIPLES IN REAL ESTATE

Analysis of the principles that govern the administration of real estate with emphasis on horizontal property laws. Discussion of topics of planning, administration of rents, contractual negotiation, human relations with employees and other relevant topics. Prerequisites: MAEC 2212, BADM 2250.

3 credits

REAL 4000 INTRODUCTION TO THE APPRAISAL OF REAL ESTATE

Analysis of the methods used to consider the value of real estate. Discussion of the basic principles on appraisal or evaluation methods, the necessary documentation, and the analysis of these to obtain an opinion on the value of an immovable property. Includes the study of the methods of sale, comparisons, production costs and zoning. Evaluation of appraisal reports and their reconciliations. Prerequisites: MAEC 2221, FINA 3500.

3 credits

REAL 4100 ETHICS IN THE REAL ESTATE BUSINESS

Analysis of the ethical principles related to the real estate industry from a managerial perspective. Prerequisite: FINA 3500.

2 credits

REAL 4400 FINANCIAL MARKETS AND THE BANKING SECTOR IN REAL ESTATE

Review of the relation of the capital markets with real estate. Includes the role of the financial system used in real estate markets. Analysis of the financial instruments of the secondary markets used in real estate investments. Prerequisite: FINA 3500.

3 credits

REAL 4910 INTERNSHIP

Practical experience in the real estate field supervised jointly by a professor and a designated professional in the practice center. This practice is subject to the rules and regulations applicable to real estate in Puerto Rico. Requires a minimum of 90 hours to complete the designated work.

3 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.

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.

3 credits

Courses in Religion (RELI)

RELI 2013 COMPARED 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 2020 INTRODUCTION TO THE BIBLE

Review of the history and the formation process of the Bible as a sacred text. Panoramic introduction to the literature of the Hebrew Bible, the New Testament and the deuterocanonical materials. Demonstration of some methods of Biblical exegesis. 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 2311 HISTORY AND THEOLOGY

Analysis of the development of theological thought within its historical context. Includes the period from the Pauline letters to Saint Agustin. Prerequisite: GECF 1010. Corequisite: RELI 2020.

3 credits

RELI 2312 HISTORY AND THEOLOGY II

Analysis of the development of theological thought within its historical context. Includes the period from the fall of the Western Roman Empire in the fifth century to the Protestant Reformation of the 16th century. Prerequisite: RELI 2311.

3 credits

RELI 3013 OLD TESTAMENT

Historical-critical re4view of the Old Testament. Emphasis on the religion of Ancient Israel, its institutions and prophets. Prerequisite: RELI 2020.

3 credits

RELI 3024 NEW TESTAMENT

Historical-critical review and of the New Testament with emphasis on the Gospels and the letters of Saint Paul. Prerequisite: RELI 2020.

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

Review of ths history of Christian ethical thinking in an ecumenical context. Prerequisite: GECF 1010.

3 credits

RELI 3220 RELIGIOUS ORGANIZATIONS

Review of the diverse approaches and theological theories: the scientific social and the scientific cultural that analyze religious organizations and their interactions with the community and society. Application of approaches, theories, and analysis of data for administration and decision making. Prerequisite: GECF 1010.

3 credits

RELI 3313 HISTORY AND THEOLOGY III

Analysis of the development of theological thought within its historical context. Includes the period from 16th century to the present. Prerequisite: RELI 2312.

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

Discussion of the influence of religion in relation to political, economic, social and educational concerns in Latin America. Prerequisite: RELI 2312.

3 credits

RELI 397_ SPECIAL TOPICS

Discussion and analysis of topics of interest in the area of studies in religion, aimed to enrich the academic formation of the student. Prerequisite: Authorization of the Department Director.

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 4200 ANALYSIS OF RELIGIOUS DISCOURSE

Analysis of the religious discourse and its function in faith communities. Evaluation and critique of the structure, style and the symbolic, theological, sociopolitical and cultural content of liturgies, homilies (sermons) and other forms of the religious discourse. Construction of discursive forms that foment a communicative action of universal solidarity. Prerequisites: RELI 2020, 2311.

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

Courses in Reserve Officers Corps: Aerospace Studies (AEST)

AEST 3001, 3002 THE AIR FORCE TODAY

This course is a survey course designed to introduce students to the United States Air Force and Air Force Reserve Officer Training Corps. Featured topics include: mission and organization of the Air Force, officers professionalism, military customs and courtesies, Air Force officer opportunities, group leadership problems, and an introduction to communication skills. Leadership Laboratory is mandatory for Air Force ROTC cadets, and it complements this course by providing cadets with fellowship experiences.

One hour of lecture and one and a half hours of Leadership Laboratory (Corps Training) per week each semester.

2 credit hours per semester

AEST 3011, 3012 THE AIR FORCE WAY

This course is a survey course designed to facilitate the transition from Air Force ROTC cadet to Air Force ROTC candidate. Featured topics include: Air Force heritage, Air Force leaders, Quality Air Force, an introduction to ethics and values, introduction to leadership, group leadership problems. And continuing application of communication skills. Leadership Laboratory is mandatory for Air Force ROTC cadets, and it complements this course by providing cadets with their first opportunity for applied leadership experiences discussed in class.

One hour of lecture and one and a half hours of Leadership Laboratory (Corps Training) per week each semester.

2 credit hours per semester

AEST 4001, 4002 AIR FORCE LEADERSHIP AND MANAGEMENT

This course is a study of leadership and quality management fundamentals, professional knowledge, Air Force doctrine, leadership ethics, and communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situation as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory Leadership Laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course.

Three hours of lecture and one and a half hours of Leadership Laboratory (Corps Training) per week each semester.

4 credit hours per semester

AEST 4011, 4012 PREPARATION FOR ACTIVE DUTY

This course examines the national security process, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics of interest focus on the military profession, military justice, civilian control of the military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis is given to refining communication skills. An additional Leadership Laboratory complements this course by providing advanced leadership experiences, giving students the opportunity to apply the leadership and management principles of this course.

Three hours of lecture and one and a half hours of Leadership Laboratory (Corps Training) per week each semester.

4 credit hours per semester

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 1010 INTRODUCTION TO THE ARMY AND CRITICAL THINKING

The outcome of this lesson is for Cadets to understand the course structure and to identify requirements and expectations. A basic understanding of the introductory course for the Reserve Officer Training Corps Program will enable the Cadets to develop a sense of what to expect in the ROTC program, as well as what is important to the US Army in the early stages of leader develop.

2 credits

MISC 1020 FOUNDATIONS OF AGILE AND ADPATIVE LEADERSHIP

Lifelong Learning/Lifelong Learner/Pursue excellence and continue to grow/Value lifelong learning as fundamental to individual and organizational success.

2 credits

MISC 2010 LEADERSHIP AND DECISION MAKING

The outcome of this lesson is for Cadets to understand the course structure and to identity requirements and expectations. A basic understanding of the MSL II first semester will enable the Cadets to develop a sense of what to expect for this first semester of their second year of ROCT as they continue their development as the future leadership of the United States Army.

2 credits

MISC 2020 ARMY DOCTRINE AND TEAM DEVELOPMENT

The outcome of this lesson is for Cadets to understand the course structure and to identify requirements and expectations. A basic understanding of the MSL II second semester will enable the Cadets to develop a sense of what to expect for the last semester of their second year of ROTC as they continue their development as the future leadership of the United States Army.

2 credits

MISC 3010 TRAINING MANAGEMENT AND THE WARFIGHTING FUNCTIONS

The outcome of this lesson is for Cadets to understand the course structure and to identify requirements and expectations. A basic understanding of the advance course for the Reserve Officer Training Corps Program will enable the Cadets to develop a sense of what to expect and be expected during the next year in BOLC A, as well as what is important to the US Army in the early stages of leader develop.

4 credits

MISC 3020 APPLIED LEADERSHIP IN SMALL UNIT OPERATIONS

The outcome of this lesson is for Cadets to understand the course structure and to identify requirements and expectations. A basic understanding of the advance course for the Reserve Officer Training Corps Program will enable the Cadets to develop a sense of what to expect in the ROTC program, as well as what is important to the US Army in the early stages of leader development.

4 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 4010 THE ARMY OFFICER

Lifelong Learning/Lifelong Learner (includes digital literacy)/Pursue excellence and continue to grow/Value lifelong learning as fundamental to individual and organizational success.

4 credits

MISC 4020 COMPANY GRADE LEADERSHIP

Lifelong Learning/Lifelong Learner (includes digital literacy)/Pursue excellence and continue to grow/Value lifelong learning as fundamental to individual and organizational success.

4 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 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 purpose, values and ethics of social work. Analysis of the historical perspective of the development of the social work profession and the social welfare system. Self reflection on the potential and interest in the practice of the profession. The course is approved with a grade of B or above. The student has a maximum of three (3) opportunities to pass the course.

3 credits

SOWO 2505 THEORIES AND DEBATES IN THE SOCIAL CONTEXT OF THE PROFESSION

Analysis of the sociological and psychological theories that explain the individual and collective social dynamics. Integration and analysis of these perspectives for their critical analysis in the debates and discussions on the social problems in which the profession of social work becomes involved. Prerequisite: SOWO 2503.

3 credits

SOWO 2514 SOCIAL POLICY AND SERVICES

Study of the development of the social policies related to the social welfare system. Critical analysis of the social policies and their relation with social problems, the programs and the services offered. Prerequisite: SOWO 2505.

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 INDIVIDUALS AND THEIR SOCIAL ENVIRONMENT I

Study of human development and behavior through the general systems theory. Analysis of environmental forces, their implications for individuals, the analysis of society, culture, community, social organization and groups as human systems, and the implications for social work. Prerequisite: SOWO 2505.

3 credits

SOWO 3462 INDIVIDUALS AND THEIR SOCIAL ENVIRONMENT II

Analysis of behavioral theories and human development in the study of the family and the individual as a social system. Study of the eco-systemic perspectives and the strengths of their application in the intervention with the family, the individual and other social systems. Prerequisite: SOWO 3461.

3 credits

SOWO 3504 INTRODUCTION TO SOCIAL AGENCIES ADMINISTRATION AND SUPERVISION

Analysis of the roles of the generalist social worker in the administration and supervision of social agencies and their basic processes of planning, organization, coordination, direction and control. Discussion of general principles of the administration and supervision of social agencies and the role of the administrator in the transformation of social policies that promote social and economic justice. Evaluation of basic characteristics of current social agencies and how these are committed to cultural diversity. Prerequisite: SOWO 2514.

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. Prerequisite: 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 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 4100 COPING WITH LOSS AND DEATH

Exploration of theories, approaches and practices related to the management of losses, pain, death, and mourning. Study of the stages in the process of death and the strategies of intervention considering the cultural aspect.

3 credits

SOWO 4873 SOCIAL RESEARCH METHODOLOGY

Analysis of the relation of the social research process and the professional practice of social work. Study of the qualitative and quantitative approaches for understanding the social phenomena that affect the diverse human systems. Emphasis on research as an instrument to promote an efficient professional practice. Prerequisite: PSYC 3001.

4 credits

SOWO 4911 PRACTICE EXPERIENCES IN GENERALIST SOCIAL WORK I

Application of the knowledge, skills and principles of professional ethics of the generalist social worker in a community agency. Emphasis on the work with individuals and families, groups and community. A minimum of 200 hours of practice is required during the semester under the supervision of a specialist. The course may not be substituted by work experience. Prerequisites: SOWO 3802, 4932.

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. Continuation of generalist social work with the human systems. Experience with the organization and the research area are included. A minimum of 200 hours of practice under the supervision of a specialist in the area is required. The course may not be substituted by work experience. Prerequisite: SOWO 4911.

4 credits

SOWO 4931 GENERALIST SOCIAL WORK WITH INDIVIDUALS AND FAMILIES

Study of the phases of the generalist model and its methods, techniques and skills in social work practice. Application of the generalist model with individuals and families. Prerequisites: SOWO 3462, 3801.

3 credits

SOWO 4932 GENERALIST SOCIAL WORK WITH GROUPS

Study of the conceptual and theoretical frames and application of the intervention methods from the generalist perspective of social work with groups. Prerequisite: SOWO 3801. Corequisite: SOWO 4931.

3 credits

SOWO 4933 GENERALIST SOCIAL WORK WITH THE COMMUNITY

Development of skills, knowledge and values in communitarian social work with a generalist perspective in the social work profession. Discussion and application of conceptual and theoretical frames that permit communitarian social intervention in Puerto Rico. Analysis of communitarian social work models, their main stages of development, strategies and techniques. Prerequisites: SOWO 3802, 4873, 4931, 4932.

3 credits

SOWO 4951 SEMINAR IN EDUCATION PRACTICE I

Self reflexive examination of the personal and professional learning experiences in the practice. Development of critical thinking skills, their relation to the theories and practice of Social Work and the current social policies. Analysis of ethical and diversity matters related to the profession, which may be linked to students' interventions in their practice centers. Prerequisites: SOWO 3802, 4873, 4931, 4932. Corequisite: SOWO 4911.

3 credits

SOWO 4952 SEMINAR IN EDUCATION PRACTICE II

Analysis of the learning experiences that integrate critical thinking skills and their relation to the theories and practice of social work, social intervention based on the current research and social policies. Discussion of controversial and ethical matters in social work practice. Analysis of professional and personal learning as a continuum throughout life. Exchange of experiences and integration of conceptual and operational aspects in the diverse practice scenarios. Prerequisites: SOWO 4951, 4911. Corequisite: SOWO 4912.

3 credits

SOWO 4971 SEMINAR IN SOCIAL GERONTOLOGY

Discussion of the concepts and the fundamental principles of gerontology and its application during the intervention with the elderly adult. Analysis of the conditions of marginalization and discrimination to which elderly adults are exposed. Study of the social policies and how they guarantee social justice for this population.

3 credits

Courses in Sociology (SOCl)

SOCl 1030 INTRODUCTION TO SOCIOLOGY

Definition of the principles, fundamental concepts and facts related to the scientific study of society.

3 credits

SOCl 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

SOCl 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

SOCl 2050 URBAN SOCIETY AND ITS TRANSFORMATION

Identification of the metropolitan areas: social structures, recent changes, problems, institutions and potentialities.

3 credits

SOCl 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

SOCl 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

SOCl 2080 CRIMINAL JUSTICE SYSTEM

Discussion of the criminal justice system in terms of its components: the police, the public ministry, the courts and the correctional institutions.

3 credits

SOCl 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

SOCl 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 OF THE 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 1010 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 1011 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 1122 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 1123 ETHICAL AND LEGAL MATTERS AND CLINICAL PROCEDURES

Discussion of the main functions that speech and language therapists perform as established 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 ethical principles that govern the profession. Description of the roles and administrative functions in the practice of speech and language therapists. Includes skills of observation and general measures of security and introduction to the processes of clinical documentation in the discipline.

3 credits

SPTH 1124 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 1011.

3 credits

SPTH 2010 DISORDERS OF ARTICULATION AND PHONOLOGY

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 1010, 1011.

3 credits

SPTH 2015 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 1010, 1011, 1122.

3 credits

SPTH 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 2110 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 2010, 2015.

3 credits

SPTH 2120 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 1010, 1122.

3 credits

SPTH 2130 COGNITIVE AND PSYCHO-SOCIAL CONDITIONS ASSOCIATED WITH SPEECH AND LANGUAGE PROBLEMS

Study of communication disorders associated with intellectual disability, 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 1011.

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 3022 CLINICAL DOCUMENTATION IN THE PROFESSION OF SPEECH AND LANGUAGE THERAPY

Application of the skills of oral and written communication data collection. Knowledge of terms and abbreviations related to the field of health and the techniques of clinical documentation related to the profession of Speech and Language Therapy. Prerequisites: SPTH 1123, 1124, 2010, 2015

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 3141 THERAPEUTIC INTERVENTIONS FOR CHILDREN WITH SPEECH AND LANGUAGE PROBLEMS

Discussion of methods and strategies for therapeutic interventions and their application to the diverse conditions that affect speech and language. Includes the design and adaptation of materials for therapeutic purposes. Requires 30 hours of lecture and 30 hours of closed laboratory. Prerequisites: SPTH 1124, 2015, 3020, 3021

3 credits

SPTH 3142 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 3143 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 phases. Prerequisite: SPTH 1010.

2 credits

SPTH 3210 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 4141 INTEGRATION SEMINAR I

Analysis of the current situations and trends in health services that affect the discipline of speech and language therapy and the role of the speech and language therapist. Description of the changes that the speech and language therapist faces daily in the diverse scenes of clinical practice. Integration of ethical and legal principles and the results of research in the discussion of controversies related to the practice of the speech and language therapist. Corequisite: SPTH 4914.

2 credits

SPTH 4142 INTEGRATION SEMINAR II

Integration and analysis of the ethical and legal principles and the results of research in the discussion of controversies related to clinical practice. Analysis of the studies of cases related to practice experiences. Corequisite: SPTH 4915.

2 credits

SPTH 4914 PRACTICUM I

Practical experience designed on the application of evaluation skills and treatment of children and adolescents with speech and language disorders. Requires forty-five (45) hours of supervised practice in a clinical scenario, the approval of the course with a minimum grade of B and compliance with all requirements established in the Practice Manual. Prerequisites: SPTH 1123, 2120, 2130, 3020, 3021, 3022, 3140, 3141. Corequisite: SPTH 4141.

1 credit

SPTH 4915 PRACTICUM II

Practical experience designed on the application of the skills acquired in Practicum I. Requires 90 hours of supervised practice, the approval of the course with a minimum grade of B and compliance with all the requirements established in the Practice Manual. Prerequisite: SPTH 4914. Corequisite: 4142.

2 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 1039 COMMUNICATION SKILLS AND INTERPRETATION TECHNIQUES

Development of communication skills and the techniques for explaining the national heritage. Discussion of the importance of the process of sensitizing students so that they assume their role as ambassador of the country they represent, in order to meet the needs and expectations of the visitor.

3 credits

TURI 1050 TOURISM GUIDE

Study of the functions and responsibilities of the different types of guides. Review of the 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 1201 NATURAL RESOURCES INTERPRETIVE GUIDE

Study of the skills and techniques to interpret the natural resources. Discussion of the governmental policies and regulations that govern the natural areas. Development of the knowledge of good practices for natural areas. Requires field trips.

3 credits

TURI 1900 HOTEL AND ACCOMMODATION MANAGEMENT

Discussion of the concepts and processes related to the hospitality industry and accommodation management. Analysis of managerial skills to plan, manage, and implement the operation of a hotel. Emphasis on the operation of the accommodation department. Prerequisites: TURI 1020, ACCT 1161 and BADM 1900.

3 credits

TURI 2000 TOURISM LEGISLATION

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. Prerequisite: TURI 1020 or HRMT 1200.

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 2021 TOURISM GEOGRAPHY OF THE CARIBBEAN

Study of Caribbean geography to promote the region as a touristic area. Analysis on the role that Puerto Rico has as a touristic area in the Caribbean.

3 credits

TURI 2040 DESIGNING AND PLANNING OF TOURISM EXCURSIONS

Study of the characteristics and methods for the effective planning of tours. Evaluation of the touristic areas, excursion preparation, setting prices, schedule preparation and reservations. Analysis of the relation between the tourist, the excursion wholesalers, the travel agencies, lodging, transportation services, and excursions companies.

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 2201 TOURISM ADVENTURE GUIDE

Description of the different areas in which adventure tourism is practiced. Development of the basic skills for the practice of these activities. Discussion of the responsibilities of the tour guide, the insurance policies and related procedures. Prerequisite: TURI 1201.

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 PRACTICE IN TOUR GUIDE

Study of the learning experiences for the specialization in Tour Guide in a center approved by the faculty for practice in the theories, concepts and acquired skills. Requires a total of one hundred sixty-five (165) hours under the supervision of a professor. Prerequisite: Have approved all the major courses. Authorization of the director of the department or his representative.

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: HMG 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 4010 CULTURAL HERITAGE TOURISM MANAGEMENT

Analysis of the evolution of the history of cultural heritage with emphasis on oral heritage, historical memoir, scenery, territory, and its interrelation with culture. Application of the principles for sustainable heritage management for tourism use, as well as the formulation of sustainable strategies in the preparation of cultural products for tourism. Prerequisites: TURI 1020, TURI 2200.

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 PRACTICUM 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 one hundred and eighty (180) hours in the Practice Center. Prerequisites: To have completed all concentration courses and the authorization of the director of the department or 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

Courses in Veterinary Technician (VETC)

VETC 1100 INTRODUCTION TO VETERINARY SCIENCES

An overview of the history of veterinary sciences and the functions of a veterinary technician. Description of the different areas of a veterinary center and of the work performed in each of them.

2 credits

VETC 1110 ANIMAL BIOLOGY

Description of the forms of animal life, its diversity and its functions, the social structure, its behavior and semiology. Discussion of the physical and chemical processes that occur in the animal body and the interactions between organisms and their environment. It requires 45 lecture hours and 30 laboratory hours.

4 credits

VETC 1120 ANIMAL ANATOMY AND PHYSIOLOGY

Description of the basic elements of anatomy and animal physiology directly related to anomalies, diseases and production processes of domestic species. It requires 45 lecture hours and 45 laboratory hours. Requisite: VETC 1110.

4 credits

VETC 1130 ANIMAL WELFARE

Explanation of the concept of well-being of animals, the factors that condition it and how it is determined. Recognition of the physical well-being of the animals with regard to accommodation, treatment, care and the process of euthanasia. Awareness of respect, ethical and moral treatment of animals and social and legal aspects related to animal welfare.

3 credits

VETC 2201 PARASITOLOGY AND MICROBIOLOGY

Description and identification of morphology, taxonomy, life cycles and epidemiological aspects of parasites, fungi and other microorganisms that affect animals. Requisite: VETC 1120.

3 credits

VETC 2202 CLINICAL LABORATORY

Procedures of the collection, handling, conservation and analysis of samples. Use of materials, equipment and identification of alterations in the samples. Application of information for the prevention of risks, accidents, regulations or regulations in force and the disposal of biomedical waste. It requires 45 hours of practice. Requisites: VETC 1120 and VETC 2201.

1 credit

VETC 2210 PHARMACOLOGY AND TOXICOLOGY

Examination of the action of drugs on biological systems, sources, chemical properties and therapeutic uses. Fundamentals of pharmacology and the identification of substances of a toxic nature for animal health.

3 credits

VETC 2220 VETERINARY NURSING

Discussion of the processes of care and handling of animals, vital signs, techniques of restraint and techniques of administration of prescription drugs. Analysis of the symptoms of diseases and how to act in cases of emergency. It requires 45 lecture hours and 45 laboratory hours. Requisite: VETC 1120.

4 credits

VETC 2230 FEEDING AND ANIMAL NUTRITION

Identification of the basic principles of nutrition and feeding of domestic animals and exotic species. Study of their nutritional needs, the detection and treatment of anomalies or diseases. Evaluation of food control in the different stages of the animal's life. Requisite: VETC 1110.

3 credits

VETC 2240 RADIOLOGY

Application of the fundamental concepts of the most used radiographic techniques and other diagnostic imaging techniques. Equipment management and personal protection. It requires 45 lecture hours and 45 laboratory hours. Requisite: VETC 1120.

4 credits

VETC 2250 ANESTHESIA AND SURGERY

Preparation of the operating area and the organization of surgeries. Identification of materials, instruments and surgical equipment. Discussion and practice of anesthesia and aseptic techniques, cleaning and sterilization of equipment. It requires 45 lecture hours and 45 laboratory hours. Requisite: VETC 1120.

4 credits

VETC 2910 VETERINARY TECHNICAL PRACTICE

Experience for the acquisition, consolidation and integration of the skills and competences that correspond to the profile of the graduate's competences. 120 hours of supervised practice in the main areas of a veterinary center. Requisite: Authorization of the director or coordinator of the Program.

2 credits

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- DOMÍNGUEZ RODRÍGUEZ, NORBERTO, Catedrático Auxiliar. Vicepresidente de Asuntos Religiosos. B.A. Universidad de Puerto Rico; M.Div. Seminario Evangélico 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. B.A., M.P.L., Universidad de Puerto Rico.
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- RIVERA GONZÁLEZ, ANTHONY, Catedrático de Ciencias Políticas y Educación. Director Institucional de Asuntos Curriculares. B.A. Universidad de Puerto Rico-Mayagüez; M.A. Bowling Green State University, Ohio; Ed.D. Universidad del Turabo.
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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 - UPR Mayagüez

University of Puerto Rico, Mayagüez Campus

CHICO, FÉLIX, Supervisor e Instructor de Inglés. M.A. Universidad de Puerto Rico.

DELGADO, JOSE A., MSG, Senior Drill Instructor.

DE SANTIAGO, JOSÉ E., Mayor, Catedrático Auxiliar de Ciencias Militares. M.S., Universidad de Puerto Rico.

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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.

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