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UNIVERSITY  
OF PUERTO RICO**

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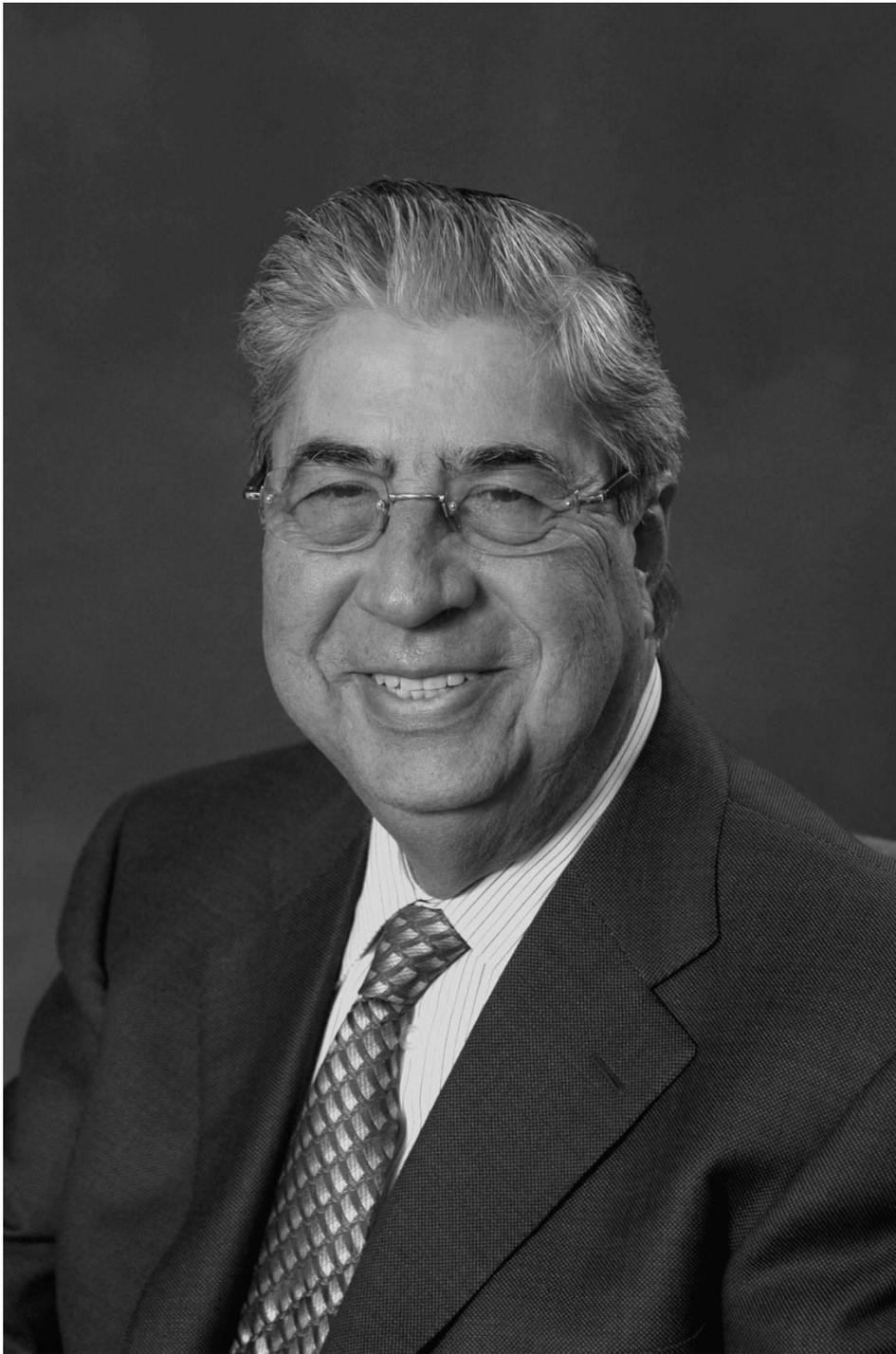
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Inter American University  
Urb. Jardines Metropolitanos  
399 Calle Galileo  
San Juan, Puerto Rico 00927-4517  
\*PO Box 363255  
San Juan, Puerto Rico 00936-3255  
Tel. (787) 766-1912  
[www.inter.edu](http://www.inter.edu)

## **AGUADILLA CAMPUS**

Inter American University  
Barrio Corrales, Sector Calero  
Aguadilla, Puerto Rico  
\*PO Box 20000  
Aguadilla, Puerto Rico 00605-9001  
Tel. (787) 891-0925  
[www.aguadilla.inter.edu](http://www.aguadilla.inter.edu)

## **ARECIBO CAMPUS**

Inter American University  
Highway #2, Km. 80.4  
Bo. San Daniel, Sector Las Canelas  
Arecibo, Puerto Rico  
\*PO Box 144050  
Arecibo, Puerto Rico 00614-4050  
Tel. (787) 878-5475  
[www.arecibo.inter.edu](http://www.arecibo.inter.edu)

## **BARRANQUITAS CAMPUS**

Inter American University  
Barrio Helechal, Highway 156  
Intersection 719  
Barranquitas, Puerto Rico  
\*PO Box 517  
Barranquitas, Puerto Rico 00794-0517  
Tel. (787) 857-3600  
[www.br.inter.edu](http://www.br.inter.edu)

## **BAYAMON CAMPUS**

Inter American University  
Bo. Cerro Gordo  
\*500 Highway John Will Harris  
Bayamón, Puerto Rico 00957-6257  
Tel. (787) 279-1912  
<http://bc.inter.edu>

## **FAJARDO CAMPUS**

Inter American University  
Calle Unión-Batey Central  
Highway 195  
Fajardo, Puerto Rico  
\*PO Box 70003  
Fajardo, Puerto Rico 00738-7003  
Tel. (787) 863-2390  
<http://fajardo.inter.edu>

## **GUAYAMA CAMPUS**

Inter American University  
Barrio Machete  
Highway 744, Km. 1.2  
Guayama, Puerto Rico  
\*PO Box 10004  
Guayama, Puerto Rico 00785-4004  
Tel. (787) 864-2222  
<http://guayama.inter.edu>

## **METROPOLITAN CAMPUS**

Inter American University  
Highway 1, Km. 16.3  
Corner Francisco Sein St.  
Río Piedras, Puerto Rico  
\*PO Box 191293  
San Juan, Puerto Rico 00919-1293  
Tel. (787) 250-1912  
[www.metro.inter.edu](http://www.metro.inter.edu)

## **Inter American University Trimester Program in English**

Highway 1, Km. 16.3  
Corner Francisco Sein St.  
Río Piedras, Puerto Rico  
\*PO Box 191293  
San Juan, Puerto Rico 00919-1293  
Tel. (787) 758-0837  
[www.metro.inter.edu](http://www.metro.inter.edu)

## **PONCE CAMPUS**

Inter American University  
Turpeaux Industrial Park  
Mercedita, Puerto Rico  
\*Turpeaux Industrial Park  
Mercedita, Puerto Rico 00715-1602  
Tel. (787) 284-1912  
<http://ponce.inter.edu>

**School of Aeronautics**  
Inter American University  
Fernando L. Rivas Dominicci Airport  
Isla Grande, Puerto Rico  
Tel. (787) 724-1912  
<http://bc.inter.edu>

**SCHOOL OF LAW**  
Inter American University  
170 Federico Costa  
Sector Tres Monjitas  
Hato Rey, Puerto Rico  
\*PO Box 70351  
San Juan, Puerto Rico 00936-8351  
Tel. (787) 751-1912  
<http://www.derecho.inter.edu>

\*Mailing address

**SAN GERMÁN CAMPUS**  
Inter American University  
\*PO Box 5100  
San Germán, Puerto Rico 00683-9801  
Tel. (787) 264-1912  
<http://www.sg.inter.edu>

**SCHOOL OF OPTOMETRY**  
Inter American University  
\*500 Highway John Will Harris  
Bayamón, Puerto Rico 00957  
Tel. (787) 765-1915  
<http://www.optonet.inter.edu>

## **General Information**

### **History of the University**

Inter American University of Puerto Rico is a private institution with a Christian heritage and an ecumenical tradition. It is a non-profit organization that provides college instruction to persons of both sexes. It was originally founded in 1912 as the Polytechnic Institute of Puerto Rico by the Reverend J. William Harris and offered elementary and secondary education on the land occupied today by the San Germán Campus. The first college level courses were started in 1921 and in 1927, the first group of students graduated with Bachelor's Degrees. In 1944, the Institution was accredited by the Middle States Association of Colleges and Schools. It was the first four-year liberal arts college to be so accredited outside the continental limits of the United States. This accreditation has been maintained since then. The University is approved to provide educational services to veterans intending to pursue studies under the norms of the Veterans' Administration. The programs of the University are authorized by the Council on 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, 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 distance learning programs, 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 Council on Optometric Education (ACOE)
  - School of Optometry
- 3) American Bar Association (ABA)
  - School of Law
- 4) Council on Accreditation of Nurse Anesthesia Educational Program (CANAEP)
  - Arecibo Campus
- 5) Council on Social Work Education (CSWE)
  - Arecibo and Fajardo campuses (BA)

- Metropolitan Campus (BA, MSW)
- 6) International Association for Continuing Education and Training (IACET)
  - Aguadilla, Arecibo, Barranquitas, Bayamón, Fajardo, Guayama, Metropolitano, Ponce and San Germán campuses
  - School of Law
  - School of Optometry
- 7) Joint Review Committee on Education in Radiologic Technology (JRCERT)
  - San Germán Campus (AAS, BS)
- 8) National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
  - Metropolitano and San Germán campuses (BS, Professional Certificate)
- 9) *Accreditation Commission for Education in Nursing* (ACEN), formerly *National League for Nursing Accrediting Commission, Inc.* (NLNAC) (<http://www.acenursing.org>)
  - Aguadilla, Arecibo and Metropolitan campuses (BSN)
  - Recinto Metropolitano (AAS)
- 10) Network of International Business Schools (NIBS)
  - Metropolitan Campus (Division of Economic and Administrative Sciences)
- 11) Teacher Education Accreditation Council (TEAC)
  - Arecibo, Barranquitas, Fajardo, Guayama, Metropolitano, 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)

## Servicemembers Opportunity College (SOC)

The University participates in the network of colleges and universities in the United States and abroad known as Servicemembers Opportunity College (SOC). Member institutions are open to men and women on active duty in any of the military services and to their dependents. Information regarding the SOC program at Inter American University may be obtained from the Registrar Office.

## Reserve Officers Training Corps (ROTC)

Since January 1975, Inter American University has had formal arrangements with the University of Puerto Rico whereby male and female students of Inter American University may register in the University of Puerto Rico's

program for the training of Reserve Officers. Arrangements for participation in this Program should be made with the Department of Military Science or Department of Aerospace Studies at the University of Puerto Rico in Río Piedras or Mayagüez. All ROTC credits taken by Inter American University students under this agreement will be included on their transcripts together with their corresponding grades. These grades will be counted in the grade point index.

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

## Services for Veterans

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

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

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

Students accumulate semesters of study as indicated below:

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

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

## Academic-Administrative Calendars

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

## Instructional Units

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

## Academic Degrees

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

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

## Publications

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

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

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

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

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

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

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

## Continuing Education Program

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

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

The Program strives to achieve the following objectives:

1. To provide an academic offering that responds to the interests and needs of the community and groups the Program serves.

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

## **Academic Offerings of the Continuing Education Program**

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

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

## **Development of Educational Offerings in Continuing Education**

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

## **Development of Educational Activities**

1. Different educational activities will be available in special schedules in and outside of institutional facilities. Each one of these will be specifically designed to satisfy the needs and interests of diverse populations that will share their time between study and other personal, occupational, or professional enrichment activities.
2. These educational activities will take place in physical facilities prepared with appropriate resources for learning and in which faculty members will be able to develop their classes in an efficient manner. The Chief Executive Officer of the campus will be responsible for providing the required conditions for the fulfillment of this norm.
3. The different academic units will utilize technological advancements to make their academic offerings or special activities available to different populations both in and outside of Puerto Rico.
4. The Program will maintain a faculty with the required academic preparation, vast experience, ample knowledge and up-to-date professional knowledge in the different curricula in order to facilitate the

acquisition of practical and pertinent knowledge in accordance with the demands of a highly technological and competitive world.

5. The Central Office, as well as the academic units, will provide activities for the continuous enrichment and professional development of the faculty and other program personnel in curricular and pedagogical matters. Program faculty may participate in the developmental learning experiences planned for the regular faculty of academic unit.
6. The Chief Executive Officers may consult and request advice from the Vice Presidency for Academic and Student Affairs and Systemic Planning with regard to the academic development of the Program or in any other related matter.

## **Alumni Association**

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

## **Admission to the University**

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

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

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

## **Admission to Graduate and Professional Programs**

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

## **Provisional Admission**

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

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

## **Provisional Admission of Transfer Students**

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

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

## Requirements for Undergraduate Admission

Applicants to any campus of Inter American University of Puerto Rico at the undergraduate level must 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 1 for	Trimester III	(February)

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

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

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

## **Early Admission to University Studies**

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

## **Admission of New Students to AVANCE**

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

1. Be at least 21 years old or be legally independent, as demonstrated by means of an official and valid document (copy of the Birth Certificate, copy of the Liberation Document, copy of Marriage Certificate or copy of a document issued by some pertinent agency).
2. 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. Meet the academic progress and the disciplinary norms of this University.
3. Submit an updated vaccination certificate if they are under 21 years of age.

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

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

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

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

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

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

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

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

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

## **Admission to Special Programs**

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

## **Admission of Audit Students**

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

## **Admission of Foreign Students**

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

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

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

## **Admission of Special Students**

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

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

# Honors Program

## Philosophy and Objectives

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

In this Program the University will make efforts to achieve that students assume greater responsibility for their learning through research and independent work. The faculty of the Program will plan learning experiences 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 student in their academic and leadership aspirations and promote in them dignity, self-esteem and the total and integral development of their potentiality as being human beings.
- 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 between 24 and 60 university credits will be considered for admission if they have a general academic index of at least 3.50, and met the academic progress norm in their immediately previous term of studies. 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 own university experience and request admission to the program, must comply with the following requirements:

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

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

## **Changes from the Regular Program to the AVANCE Program**

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

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

## **Placement Tests for AVANCE Students**

1. Students who have not taken the “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.

## Distance Learning

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

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

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

## Admission to Distance Learning Programs

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

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

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

1. Present evidence of graduation from an accredited secondary school or its equivalent with a minimum grade point index of 2.00
2. Present the scores obtained in the one of the following admission tests, or equivalent:
  - a. Test for Evaluation and Admission to University Studies (PEAU) administered by the College Board of Puerto Rico.
  - b. Scholastic Aptitude Test (the SAT) administered by the College Board in the United States of America.
  - c. American College Testing (ACT).
3. Obtain a minimum admission index of 800. This index is calculated by using the test results and the high school grade point index.
4. Be interviewed by the means available when deemed necessary

### B. Admission by Transfer from Other University Level Institutions

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

1. Submit the admission application with an official copy of the academic transcript from the university or college of origin. The copy of the transcript must be sent directly from the offices of the registrar of those institutions to the appropriate Admissions Office of Inter American University.

2. Have at least twelve transferable semester credits with a minimum grade of C from another accredited institution. When an academic program has different grade requirements, students must meet these minimum grade requirements.
3. Meet the particular admission norms of the academic programs for which admission is requested.
4. Meet the minimum grade point index indicated in the satisfactory academic progress policy of this University. All courses taken will be considered in determining the fulfillment of this requirement.
5. Not be under suspension for disciplinary reasons by their former institution.
6. Students, who have not taken courses in English, must present their College Board results for placement in the different levels of English.

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

### **C. Admission of Students from Other Educational Systems:**

#### **Without University Studies**

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

#### **With University Studies**

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

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

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

### **Objectives of Distance Learning**

1. To utilize technology as an instrument to increase and strengthen the University Mission in its global context.
2. To develop new approaches so that students may assume greater responsibility for their learning and faculty may become better facilitating agents of the learning process.
3. To share and maximize academic programs and institutional resources beyond the limits of the Campuses.
4. To promote equal opportunity for information access beyond the limits of time and space.
5. To increase the student population to which Inter American University offers academic programs.
6. To facilitate the establishment of collaborative agreements and consortia with other educational institutions in and outside Puerto Rico with the purpose of strengthening and sharing academic offerings.
7. To strengthen and enrich developmental programs and professional update.
8. To meet the particular needs of students with disabilities.
9. To meet the multiple needs of a heterogeneous student population.
10. To meet the particular needs of the adult population.
11. To extend institutional services beyond geographic frontiers.

## **Technologies and Media Used in Distance Learning**

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

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

### **Interactive Videoconference**

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

### **Video Courses**

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

### **Courses on Line**

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

### **Internet Courses**

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

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

### **Combined Study Courses**

These are course in which the student combines the modalities of class attendance and study on-line. The combined study modality offers students the opportunity to take fifty percent of the teaching-learning process

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

## **Proctored Evaluations**

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

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

## **Teleconference Center**

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

# Tuition, Fees and Other Charges

## ADMISSION APPLICATION

Masters Degree Students (except exchange students)	\$31.00 with application
Doctoral Students	\$75.00 with application
Law Students	
Application	\$63.00 with application
Admission	\$125.00 upon admission
Optometry Students	\$31.00 with the request

## READMISSION APPLICATION

Except undergraduate students	\$13.00 with the request
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## TUITION

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

## School of Law

Students admitted or readmitted in 2001-2003	\$400.00 per credit
Students admitted or readmitted in 2003-2008	\$410.00 per credit
Students admitted or readmitted in 2008-2009	\$425.00 per credit
Students admitted or readmitted in 2009-2010	\$450.00 per credit
Students admitted or readmitted in 2010-2012	\$457.00 per credit
Students admitted or readmitted in 2012-2013	\$485.00 per credit
Students admitted in 2013-2014	\$485.00 per credit
Master's of Law	\$650.00 per credit
Auditing without credit	50% of the regular cost
	per credit at the time that they were admitted or readmitted

## School of Optometry

Regular Program -annually (2 semesters) first year	\$26,000.00
Regular Program -annually (2 semesters) second year	\$25,750.00
Regular Program -annually (2 semesters) third and fourth years	\$25,500.00
Summer Students -per credit	\$1,500.00
Special Students -per credit	\$1,500.00
Auditing without credit	50% of the cost per credit for special students

## GENERAL AND OTHER FEES

Fees and other charges applicable to all Units except the School of Law, the School of Optometry and the Medical Technology Program

General and Other Fees	Semester	Trimester	Bimester	Summer Session
General Fee	\$60.00	\$40.00	\$32.00	\$28.00
Student Activities and Council (except Guayama)*	\$14.00	\$10.00	\$8.00	N/A
Student Activities and Council Guayama)*	\$54.00	\$34.00	\$24.00	N/A
Information Access Center	\$40.00	\$27.00	\$20.00	\$12.00
First Aid Center*	\$15.00	\$10.00	\$9.00	\$6.00
Student Center *	\$19.00	\$13.00	\$10.00	\$6.00
Infrastructure Fee: Undergraduate 9 credits or more	\$79.00	\$57.00	\$47.00	\$40.00
Infrastructure Fee: Undergraduate fewer than 9 credits	\$51.00	\$38.00	\$36.00	\$36.00
Infrastructure Fee: Master's and Doctorate	\$79.00	\$57.00	\$47.00	\$40.00
Construction, Improvements and Maintenance Fee: Undergraduate 9 credits or more	\$63.00	\$44.00	\$35.00	\$31.00
Construction, Improvements and Maintenance Fee: Undergraduate fewer than 9 credits	\$44.00	\$31.00	\$35.00	\$31.00
Construction, Improvements and Maintenance Fee: Master's and Doctorate	\$63.00	\$44.00	\$35.00	\$31.00
Social Work: Declared Majors	\$63.00	\$42.00	N/A	\$31.00
Maintenance of Active Status Fee: Masters	\$25.00	\$25.00	N/A	N/A
Maintenance of Active Status Fee: Doctorate	\$31.00	\$31.00	N/A	N/A

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

Fee for Access, transit and parking of vehicles, up to a maximum of	Semester	Trimester	Bimester	Summer Session
Aguadilla Campus	\$20.00	\$14.00	N/A	\$10.00
Arecibo Campus	\$25.00	\$17.00	\$15.00	\$12.00
Barranquitas Campus	\$15.00	\$10.00	\$10.00	\$10.00
Bayamón Campus	\$30.00	\$20.00	N/A	\$10.00
Fajardo Campus	\$13.00	\$ 7.00	N/A	\$ 7.00
Guayama Campus	\$20.00	\$14.00	N/A	\$10.00
Ponce Campus	\$20.00	\$14.00	N/A	\$10.00
School of Law	\$30.00	N/A	N/A	\$10.00
School of Optometry	\$30.00	N/A	N/A	N/A
Metropolitan Campus parking multifloors and other facilities, for each use	\$1.00	\$1.00	\$1.00	\$1.00
San Germán Campus	\$20.00	\$14.00	\$14.00	\$10.00

**Fees Applicable to the San German Campus and the Metropolitan Campus**

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

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

Program Admission Fee	\$31.00 with application
Infrastructure Fee	\$158.00 per year
Construction, Improvements and Maintenance Fee	\$126.00 per year
Information Access Center	\$80.00 per year
General Fee	\$60.00 per semester
Student Center	\$19.00 per semester
Student Activities and Council	\$14.00 per semester
First Aid Center	\$15.00 per semester
Total withdrawal from the Program	\$6.00 upon withdrawal

**Fees Applicable to the School of Law**

	<b>Semester</b>	<b>Summer</b>
General Fee	\$60.00	\$60.00
Student Activities and Council	\$20.00	N/A
Information Access Center	\$40.00	\$12.00
First Aid Center	\$15.00	\$6.00
Infrastructure Fee	\$79.00	\$40.00
Construction, Improvements and Maintenance Fee	\$125.00	\$63.00
Graduation Fee	\$100.00 with the request	
Law Journal	\$15.00 once a year upon registration	

**Fees Applicable to the School of Optometry**

	<b>Semester</b>	<b>Summer</b>
General Fee	\$60.00	\$50.00
Student activities and Council	\$37.00	N/A
Center for Access to Information	\$40.00	\$12.00
Infrastructure Fee	\$79.00	\$40.00
Construction, Improvements and maintenance Fee	\$63.00	\$31.00
Graduation	\$200.00 with application	
Laboratory	\$38.00 first and second year	
Clinic Fee per course requiring it	\$200.00 third and fourth year	

## OTHER FEES

### Applicable to All Units

Late Registration	\$50.00 upon registration
Deferred Payments Arrangement	\$6.00 upon arrangement
Late Payment of Deferred Payment	5% of total debt when lateness occurs
Late Final Examination (except School of Law)	\$19.00 per examination
Removal of Administrative Action Symbol "I" (Incomplete) and related academic work	\$19.00 upon application
Academic Evaluation Fee	\$10.00 with the request
Graduation (Except School of Optometry)	\$100.00 all degrees upon request
Transcript of Credits	\$3.00 per transcript
Bank Returned Checks	\$26.00 each time
Identification Card Replacement	\$7.00 with each request

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

Change of Major	\$13.00 with application starting with second change
Practice Teaching or Internship	\$19.00 per credit
Proficiency Examinations	50% of regular cost per credit
Comprehensive Examination (Masters)	\$25.00 upon application
Portfolio Evaluation	50% of regular cost of a 3 credit course
Laboratories (all disciplines, except the Engineering Program and Open Labs)	\$90.00 per hour laboratory
Open Laboratories	\$30.00 per course
Engineering Program	
Chemistry and Physics Laboratories	\$180.00 per course
Engineering Laboratories	\$300.00 per course
Office Systems Course requiring the use of technological equipment	\$90.00 per course
Nursing Program	
Program Assessment Fee	\$50.00

### Fees applicable to all units except to the Medical Technology Program

Partial or total withdrawal from courses	\$6.00 upon withdrawal
Addition of courses or changing of a course for another	\$6.00 upon change

### Applicable to all units, except the School of Law, the School of Optometry and the Medical Technology Program

Laboratory, for all disciplines requiring it, except Engineering and Aviation programs and the open laboratories	\$90.00 per laboratory hour
Laboratories, Engineering Program (only Bayamón Campus):	
Chemistry and Physics	\$180.00 per course
Engineering	\$300.00 per course
Laboratories, Airway Science Program (only Bayamón Campus)	
Individual Single-engine Airplane	\$140.00 per hour
Dual Single-engine Airplane	\$160.00 per hour
Complex Single-engine Airplane	\$225.00 per hour

Multi-engine	\$275.00 per hour
Flight Training Device	\$60.00 per hour
Individualized Flight Theory (Ground)	\$20.00 per hour
Open Laboratories	\$30.00 per course
Office Systems Management Course requiring the use of technological equipment	\$90.00 per course
Programa EDUCOSOFT (only Fajardo y Ponce)	
courses GEMA 1000 and GEMA1200	\$60.00 per course
courses MAEC 2140 (only Fajardo) and MATH 1500	\$65.00 per course
Practice Teaching and Internship	\$19.00 per credit
Masters in Biology (only Bayamón Campus)	\$150.00 per hour, per advanced semester
Assessment Fee in Nursing Program	\$50.00 upon admission
Evaluation of the Portfolio	50% of the regular cost of a 3 credit course
Comprehensive Examination (Masters)	\$25.00 with the application
Change of Major	\$13.00 with the request, starting with the second change
Fee to stay active, for Exchange students that pay in the host institution	\$50.00 for the term of the exchange

#### **Cuotas aplicables al Recinto Metropolitano solamente**

Popular Music Program, upon declaring major	\$125.00 only once
Special Nursing Program fee only for the trimester Program in English	\$40.00 per trimester
Special fee for the Medical Emergency Certificate	\$350.00 only once, in the last semester
Special fee for the Masters Programs in Business Administration for Executives	\$300.00 per bimester
To complete the dissertation course of the Doctoral Program	\$235.00 per credit

#### **Fees applicable to Metropolitan Campus only**

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

#### **Applicable only to the San Germán Campus**

Popular Music Program, upon declaring major Room	\$125.00 only once
Eunice White Harris and Dr. Angel Archilla Cabrera Residences Room per person (4 occupants)	\$600.00 per semester \$200.00 per summer session
Lodging	\$10.00 per day

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

Dormitory Room Reservation \$25.00 with application

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

Loss of room key Depending on the cost of lock replacement

Meals - 5 days per week \$750.00 per semester

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

### **Fees and other charges**

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

**Room and Board:** When a student makes a total withdrawal from the academic term in which he registered in room and board, the student will be entitled to a prorated adjustment from the date of the withdrawal for the percent corresponding to the date of the refund of federal funds. This occurs if the date of withdrawal is within 60% of the term in which the student is enrolled. The student will be responsible for the room and board debt, in agreement with the adjustment performed.

### **CHANGES IN TUITION AND FEES**

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

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

### **PAYMENTS**

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

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

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

### **Deferred Payment Arrangements**

The University grants students the privilege of a deferred payment for 25% of the total cost of registration per semester, trimester or bimester upon signing the deferred payment document 'Pagaré Único.' To be eligible for deferred payment, students must have liquidated any debts from previous academic terms. In no case shall the total amount deferred exceed the balance of the debt after discounting the financial aid benefits or loans.

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

The payment of the deferred total cost of tuition, fees and other charges becomes due seventy-five (75) days after the first day of class in a semester calendar, forty-five (45) days in a trimester calendar, and thirty (30) days in a

bimester calendar. The deferred amount for semesters is due in a maximum of three equal installments, two payments in the case of trimesters, and one payment in the case of bimesters.

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

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

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

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

### **Debts for other Reasons**

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

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

### **ADJUSTMENTS AND REIMBURSEMENTS**

Partial Withdrawal (except the School of Law and the School of Optometry)

#### **Per Semester, Trimester and Bimester**

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

75% of the cost of the credits and laboratory fees (not including other fees) dropped during the first week of classes.

50% of the cost of the credits and laboratory fees (not including other fees) dropped during the second week of classes.

#### **THERE WILL BE NO REIMBURSEMENT AFTER THE SECOND WEEK OF CLASSES**

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

#### **Per SummerSession**

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

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

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

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

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

**FEES AND OTHER CHARGES ARE NOT REFUNDABLE AFTER THE BEGINNING OF CLASSES**

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

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

### **Return of Funds to Title IV Programs**

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

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

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

### **Return of Funds to State or Institutional Programs, Health Allied Programs or for Payments made in Cash or any other method of payment**

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

#### **Per Semester, Trimester and Bimester**

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

75% of the cost of the credits and laboratory fees (not including other fees) dropped during the first week of classes.

50% of the cost of the credits and laboratory fees (not including other fees) dropped during the second week of classes.

#### **THERE WILL BE NO REIMBURSEMENT AFTER THE SECOND WEEK OF CLASSES**

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

#### **Per Summer Session:**

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

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

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

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

#### **Per Intensive Session:**

100% return of funds on or before the first day of class.

75% return of funds during the second day of class.

50% return of funds during the third day of class.

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

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

## **Student Financial Aid**

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

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

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

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

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

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

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

## **Federal Funds**

### **Maximum Time Requirements for Federal Financial Aid**

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

## **Federal Pell Grant**

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

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

- c. If the application is not approved or if information was assumed in the approval process, the Financial Aid Director can help and can get in touch with the student. The Financial Aid Office corrects the error electronically.
  - d. If the application is approved, the financial aid offer letter will be prepared when the student selects courses for registration,
  - e. The payment process during enrollment is simplified. It can even be done by mail.
2. Applicants that received Federal Aid at Inter American University of Puerto Rico the previous year need only to update their application for renewal via Internet ([www.fafsa.ed.gov](http://www.fafsa.ed.gov)) by using a personal identification number "PIN number" mailed by the US Department of Education. Students that do not have a PIN number may request it by accessing [www.pin.ed.gov](http://www.pin.ed.gov). This request will be processed immediately so the process may continue.
  3. Indicate on the application the campus of Inter American University where the student intends to study, authorize said campus to receive information regarding the applicant's eligibility and send the application by mail. This method is not as fast as the one described in item #1 because the application is sent by mail to an intermediary agency where the data information is entered and transmitted to the Central Processing Center. Furthermore, the information is not reviewed by a financial aid official to avoid errors. The response is electronically transmitted to Inter American University.
  4. Send the application by mail without authorizing Inter American University to receive the information electronically. This is the slowest method in processing the application since the application and the response are processed by mail and the University cannot process the application for the grant until the applicant receives it by mail and submits the answer to the Financial Aid Office.

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

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

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

### **Federal Supplemental Educational Opportunity Grant (FSEOG)**

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

### **Nursing Scholarship Program (NSP)**

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

### **Perkins Federal Student Loan Program**

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

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

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

These funds are matched with Inter American University funds.

## **Federal Direct Loans**

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

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

Dependent undergraduate students can borrow up to:

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

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

## **Nursing Student Loan**

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

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

## **Federal Work-Study Program**

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

## **Commonwealth Funds**

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

## **Institutional Funds**

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

### **Institutional Scholarships**

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

### **Athletic Scholarships**

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

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

### **Student Development Scholarship**

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

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

## **Norms and Services Related to the Office of the Registrar**

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

### **Registration and Program Changes**

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

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

### **Audit Students**

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

### **Withdrawal of a Course from the Class Schedule**

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

### **Intra-University Transfers**

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

### **University Policy Regarding Students and Alumni Directory**

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

1. Students and alumni have the right to inspect and review their academic files. They may request this in writing to the file custodian and indicate the file they wish to review. The file custodian will make the necessary arrangements so that the student or alumni may review the files within a period of time no greater than 45 days from the date in which the student or alumni presented the written request. If the person receiving the request from the student or alumni does not have the file, this person will indicate the correct place for the request to be presented.
2. Students and alumni have the right to request that incorrect information contained in their academic files be corrected. Interested students or alumni must present a written request to the University official in charge of the file, indicate the part of the file to be corrected and explain the mistake. If the University decides not to correct the file, the student or alumni will be notified of this decision in writing and the person will be informed of the right to request an informal hearing.
3. Students or alumni have the right to prevent the University from disclosing personal information found in the academic files, except in those cases where FERPA authorizes disclosure. These cases include the following:
  - a) Disclosure of information to Institution officials. Institutional officials are taken to mean administrative or teaching employees, persons contacted by the University, members of the Board of Trustees and student members of special committees.
  - b) Disclosure of Directory information. The University has designated the following data as Directory information: student or alumni name, address, major and year of study. Students and alumni have the right to prevent the University from disclosing Directory information to third parties. The disclosure to third parties includes the release of information to the Armed Forces. If students or alumni wish to prevent their information from being disclosed to the United States Armed Forces, it is necessary that they express their desire that no information be disclosed to third parties. To prevent information from being disclosed to third parties, it is necessary that students or alumni submit their request to this effect, in writing, to the Office of the Registrar of their academic unit. In order for the request to be effective for the academic year, it is important that students submit the request in or on September 1st of that year.
  - c) Information to other universities. The University will release student or alumni information to those universities to which they request admission.
  - d) Exceptional circumstances. The University will disclose student or alumni information if they are economically dependent upon their parents. The University assumes undergraduate students and alumni are economically dependent upon their parents; therefore, in some cases it may disclose information without the consent of the student or alumni to parents that request it. Undergraduate students or alumni who are not economically dependent upon their parents must present this evidence to the Office of the Registrar to prevent information from being released to their parents. Information on graduate students or alumni will not be given to parents without their consent.
  - e) Emergency cases. These are cases in which the health or security of a student, alumni or other person is in danger.
  - f) Immigration and Naturalization Service. The University is obliged to give information to Immigration Service regarding certain foreign students or alumni.

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

## **Solomon-Pombo Act**

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

Inter American University establishes the following data as Directory information:

Name  
Major  
Address  
Year of study

The University exhorts all students not in agreement that these data be included in the Directory to contact the Dean of 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 \$3.00.

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

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

## **Change of Address**

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

## **Class Attendance**

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

Students, who 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 report the name and the last day of attendance, or the last day of student participation in course activities of those students who stopped attending class or activities of the course without having withdrawn officially. The administrative action symbol UW will be used to identify these students.

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

## **Study in Other Institutions of Higher Education**

Students desiring to take courses in other institutions of higher education either in or outside of Puerto Rico must obtain previous authorization from the dean of 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**

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

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

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

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

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

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

## **Change of Major**

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

## **Withdrawal from the University**

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

## **Student Course Load**

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 to the course instructor. This faculty member will be responsible for discussing the evaluations with the student and if necessary will submit a grade change according to the corresponding process.

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

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

## Administrative Action Symbols

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

- W-** Course Withdrawal: Assigned when the student withdraws from a course after the end of the period for class changes, but no later than the last day of class. This symbol appears in the academic file.
- DC-** Course Withdrawal: Assigned when the student withdraws from a course before the end of the period for class changes. This symbol does not appear on the student transcript.
- AD-** Administrative Drop: Assigned when the University drops the student for reasons such as death, suspension or other situations warranting a drop. This symbol appears in the academic file.
- AW-** Assigned in the electronic register when the professor informs, no later than the dates established in the academic-administrative calendar, that the registered student never attended the course or any related academic activity.
- 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 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 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.
- UW-** Assigned in the electronic registry when the student stopped attending class, and does not qualify for the grade of incomplete (I) or F.
- 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 academic unit has an adequately staffed and equipped Information Access Center. These Centers are organized to function as a coordinated system. An on-line catalog provides access to all University bibliographical resources as well as audiovisual and electronic resources that are made available for computer based research.

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

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

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

## **Medical Service**

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

## **Residence Halls, San Germán Campus**

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

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

## **Student Activities**

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

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

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

## **Sports and Recreation**

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

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

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

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

## **Religious Activities**

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

## **Student Councils**

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

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

Student concerns are canalized through the Student Councils. The Councils 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](http://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 May, or in the case of students enrolled in the first summer session, at the end of that session. 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 May.
- 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.**

<b>Percent (%) of credits approved</b>	<b>Progressive academic index</b>
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.**

<b>Percent (%) of credits approved</b>	<b>Progressive academic index</b>
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.**

<b>Percent (%) of credits approved</b>	<b>Progressive academic index</b>
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.**

<b>Percent (%) of credits approved</b>	<b>Progressive academic index</b>
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.**

<b>Percent (%) of credits approved</b>	<b>Progressive academic index</b>
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.**

<b>Percent (%) of credits approved</b>	<b>Progressive academic index</b>
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).**

<b>Percent (%) of credits approved</b>	<b>Progressive academic index</b>
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).**

<b>Percent (%) of credits approved</b>	<b>Progressive academic index</b>
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 of 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. Readmitted students will graduate under the program and regulations of the catalog in effect at the time of their readmission or under any subsequent catalog. In the event that a required course of the selected catalog is no longer offered by the University, substitutions may be made with the approval of the Department Chairperson. Courses required in more than one program may be credited as such in each program. Courses taken after graduation will not alter the graduation grade point index.

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

## Graduation Requirements for Associate Degrees

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

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

## General Education Requirements for Associate Degrees

### General Education Requirements for Associate Degrees - 24 credits

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

## Graduation Requirements for Bachelors' Degrees

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

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

## General Education Requirements for Bachelors' Degrees

### General Education Requirements for Bachelors' Degrees - 48 credits

#### Basic Skills - 24 credits

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

#### Philosophical and Esthetic Thought - 6 credits

GEPE	4040	Ethical Dimensions of Contemporary Matters	3
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Select one course from the following:

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

#### Christian Thought – 3 credits

GECF	1010	Introduction to the Christian Faith	3
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#### Historical and Social Context - 9 credits

GEHS	2010	Historical Process of Puerto Rico	3
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Select two courses from the following:

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

GEHS 4030 Modern and Contemporary Western Civilization 3

### **Scientific and Technological Context - 3 credits**

Select one course from the following:

GEST 2020 Science, Technology and Environment 3

GEST 3030 Fundamentals of Terrestrial and Environmental Sciences 3

### **Health, Physical Education and Recreation - 3 credits**

GEHP 3000 Well-being and Quality of Life 3

## **Application for Graduation**

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

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

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

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

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

## **Graduation with Honors**

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

3.25 for Cum Laude (with honors)

3.50 for Magna Cum Laude (with high honors)

3.85 for Summa Cum Laude (with the highest honors)

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

## **Posthumous Degree**

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

# **Academic Norms of Compliance**

## **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](http://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
<b>Associates, Bachelors, and Minors</b>			
Accounting (A.A.S.)	060	52.0301	2
Accounting (B.B.A.)	166	52.0301	5
Accounting (B.B.A.) (CPA Track)	166C	52.0301	5
Minor in Internal Auditing	248		
Minor in Accounting	166M		
<b>Airway Sciences (B.S.)</b>			
Aviation Sciences Management	152	49.0104	4
Aircraft Systems Management (Professional Pilot)	155	49.0199	4
Minor in Air Traffic Control	247		
Minor in Commercial Pilot	151M		
Audiovisual Communication Technology (A.A.S.)	071	10.0299	2
Auditing (B.B.A.)	253	52.0303	5
Minor in Auditing	253A		
Bioinformatics (B.S.)	257	26.1103	5
Biology (B.S.)	180	26.0101	5
Minor in Marine Sciences	180M		
Biomedical Sciences (B.S.)	263	26.0102	4
Biotechnology (B.S.)	258	26.1201	5
Minor in Biotechnology	258M		
Business Administration (A.A.S.)	058	52.0201	2
Cardio-Respiratory Care (A.A.S.)	091C	51.0915	3
Cardio-Respiratory Care (B.S.)	276	51.0915	5

<b>Academic Program</b>	<b>IAUPR Code</b>	<b>CIP Code</b>	<b>Program Length in Years</b>
Chemistry (B.S.)	132	40.0501	5
Minor in Chemistry	132M		
Communication in Media Production (B.S.)	280	10.0105	5
Communications in Public Relations and Advertising (B.A.)	235	09.0902	4
Computer Science (A.A.S.)	054	11.0701	2
Computer Science (B.S.)	120	11.0701	5
Minor in Basic Computer Skill	120M		
Minor in Computer Science	120B		
Minor in Computer Networks	120A		
Computerized Management Information Systems (A.A.S.)	096	52.1201	3
Corporate Communication (B.A.)	289	52.0501	4
Criminal Justice (A.A.)	095	43.0199	2
Criminal Justice (B.A.)			
Criminal Investigation	194	43.0104	4
Forensic Investigation	194B	43.0111	4
Minor in Forensic Investigation	M94B		
Design (B.A.)	283	50.0401	4
Design and Development of Video-Games (B.S.)	285	50.0411	5
Digital Graphic Design and Multimedia (B.S.)	291	50.0409	4
Education (Teacher Education) (B.A.)			
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
History	144	13.1328	5
Mathematics	128	13.1311	5
Science in the Junior High School	175	13.1316	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

<b>Academic Program</b>	<b>IAUPR Code</b>	<b>CIP Code</b>	<b>Program Length in Years</b>
School Health	267	13.1299	4
Special Education	136	13.1001	4
Special Education in Autism	277	13.1013	5
Special Education in the Deaf and Partially Deaf	M282	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		
Electronics Technology (A.S.)	099	15.0303	3
Electronics Technology (B.S.)	266	15.0303	4
Minor in Electronics	266M		
<b>Engineering (B.S.)</b>			
Pre-Engineering	245	14.0101	N/A
Computer Engineering (B.S.)	272	15.1299	5
Electrical Engineering (B.S.)	216	14.1001	5
Minor in Power and Energy Systems	216D		
Industrial Engineering (B.S.)	217	14.3501	5
Minor in Logistics and Operations Research	217A		
Minor in Quality Systems	217B		
Mechanical Engineering (B.S.)	218	14.1901	5
Minor in Aerospace Engineering	218M		
Engineering (Consortium with Penn State University (B.S.))	188	14.0101	N/A
English (B.A.)	141	23.0101	4
Minor in Oral and Written Communication	265A		
Minor in Bilingual Oral and Written Communication	265B		
Entrepreneurial and Management Development (B.B.A.)	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 Sciences (B.S.)	241	03.0104	5
Minor in Environmental Sciences	241A		
Environmental Technology (B.S.)	229	15.0599	5
Finance (B.B.A.)	222	52.0801	4
Minor in Finance	222F		
Minor in Insurance	222M		
Forensic Science (B.S.)	262	43.0106	4

<b>Academic Program</b>	<b>IAUPR Code</b>	<b>CIP Code</b>	<b>Program Length in Years</b>
Minor in Forensic Science	262A		
General Business Administration (B.B.A.)	121	52.0201	4
Graphic Design (A.A.)	075	50.0409	2
<b>Health Sciences (B.S.)</b>			
Administration	255	51.2211	5
Education	260	51.2207	5
History (B.A.)	109	54.0101	4
Minor in History	109A		
Minor in Puerto Rican History and Literature	109B		
Hotel Management (B.B.A.)	227	52.0904	5
Human Resources Management (B.B.A.)	214	52.1001	4
Minor in Human Resources Management	214M		
Humanities Studies (B.A.)	137	24.0103	4
Industrial Chemistry (B.S.)	259	40.0599	5
Minor in Industrial Chemistry	259A		
Information Technology (B.B.A.)	287	11.0103	5
Installation and Repair of Computerized Systems and Networks (A.A.S.)	080A	47.0104	3
Installation and Repair of Computerized Systems and Networks (B.S.)	240A	11.0901	4
Insurance (A.)	062A	52.1701	2
Managerial Economics (B.B.A.)	167	52.0601	4
Marketing (B.B.A.)	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 (B.A.)	111	27.0101	4
<b>Mathematics (B.S.)</b>			
Computer Science	134	27.0399	4
Pure Mathematics	210	27.0101	4
Minor in Mathematics	210M		
Medical Emergencies (A.M.E.)	091	51.0904	3
Medical Sonography in Cardiovascular Sonography (B.S.)	284	51.0901	5
Medical Technology (B.S.)	165	51.1005	5
Microbiology (B.S.)	268	26.0502	5
Minor in Microbiology	268M		
Music (B.A.)	112	50.0903	4

Academic Program	IAUPR Code	CIP Code	Program Length in Years
Music (B.M.)			
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	50.0909	2
Multidisciplinary Studies (B.A.)	292	30.9999	4
Natural Sciences (B.S.)	293	30.1801	4
Networks and Telecommunications (B.S.)	269	11.0901	4
Nursing (A.A.S.)	061	51.3901	2
Nursing (B.S.N.)	150	51.3801	4
Minor in Gerontology for Nursing	150M		
Minor in Management for Nursing	212M		
Occupational Therapy (A.S.)	061B	51.0803	3
Office Systems Management (A.A.)	090	52.0204	2
Office Systems Management (B.A.)	249	52.0204	4
Minor in Office Systems Management	249M		
Operations Management (B.B.A.)	286	52.0205	4
Optical Sciences Technology (A.A.S.)	089	51.1802	3
Pharmacy Technician (A.A.S.)	092	51.0805	3
Photography (A.)	097	50.0605	2
Physical Therapist Assistance (A.S.)	061P	51.0806	3
Political Science (B.A.)	114	14.1001	4
Popular Music (A.)	087	50.0903	3
Popular Music (B.A.)	232	50.0903	4
Minor in Anthropology and History of Music	232A		
Minor in Sacred Music	232M		
Psychology (B.A.)	115	42.0101	4
Minor Intervention and Stabilization of Clients in Crisis Situations	115M		
Radiological Sciences in Computerized Tomography and Magnetic Resonance (B.S.)	273	51.0911	5
Radiological Technology (A.A.S.)	073	51.0907	3
Radiological Technology in Mammography and Angiography (B.S.)	274	51.0911	5
Real State (B.B.A.)	288	52.1501	4
Restaurant and Food Services Administration (A.A.S.)	058F	19.0505	2
Sales (A.A.S.)	098	52.1899	2
Social Sciences (B.A.)	119	45.0101	4
Social Work (B.A.)	118	44.0701	4

Academic Program	IAUPR Code	CIP Code	Program Length in Years
Minor in Gerontology for Social Work	118M		
Minor in School Social Work	118A		
<b>Sociology (B.A.)</b>			
Criminal Justice	196	45.1101	4
General Anthropology	197	45.1101	4
General Sociology	211	45.1101	4
Minor in Archaeology	211M		
Minor in Communitarian Social Development	211A		
<b>Spanish (B.A.)</b>			
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 (B.S.)	281	51.0203	4
Sports Technology (B.A.)	189	31.0504	4
Studies in Religion (A.A.)	088	38.0201	3
Studies in Religion (B.A.)	239	38.0201	4
<b>Tourism (A.S.)</b>			
Tourist Guide	081	52.1905	2
Tourism Management (B.B.A.)	279	52.0903	4
Training and Sports Management (B.A.)	278	31.0504	4
<b>Visual Arts (B.A.)</b>			
Ceramics and Sculpture	173	50.0711	4
Painting and Graphic Arts	171	50.0708	4
Photography	172	50.0605	4
Art Education	254	13.1302	5
<b>Professional Certificates</b>			
Conflict Mediation (Professional Post-Bachelor's Certificate)	415	30.1701	
Entrepreneurial Development (Professional Post-Associate Certificate)	058A	52.0701	
Medical Technology (Professional Post-Bachelor's Degree)	135	51.1005	
Polysomnography (Professional Post-Associate Certificate)	046A	51.0917	
<b>Distance Learning: Associates and Bachelors</b>			
Accounting (A.A.S.)	060D	52.0301	2
Business Administration	093	52.0201	2
Computer Science (A.A.S.)	054D	11.0701	2
Computer Science (B.S.)	120D	11.0701	5

<b>Academic Program</b>	<b>IAUPR Code</b>	<b>CIP Code</b>	<b>Program Length in Years</b>
Computerized Management Information Systems (B.S.)	096D	52.1201	3
Criminal Justice: Criminal Investigation (B.A.)	194A	43.0111	4
Criminology (B.S.S.)	143D	45.0401	4
<b>Education (Teacher Education) (B.A.)</b>			
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
Human Resources Management (B.B.A.)	214A	52.1001	4
Management (B.B.A.)	212A	52.0201	4
Marketing (B.B.A.)	149A	52.1401	5
Office Systems Management (A.A.)	090A	52.0204	2
Office Systems Management (B.A.)	249A	52.0204	4
Operations Management (B.B.A.)	286D	52.0205	4
Studies in Religion (A.A.)	088D	38.0201	3
Studies in Religion (B.A.)	239D	38.0201	4
<b>Distance Learning: Professional Certificates</b>			
Entrepreneurial Development (Professional Post-Associate Certificate)	058D	52.0701	

## Subject Codes Used in Catalog and in the System

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

German .....	GERM
Gerontology .....	GERO
Health Sciences .....	HESC
Health, Physical Education and Recreation .....	HPER
Health, Physical Education and Recreation (General Education) .....	GEHP
Historical and Social Context (General Education) .....	GEHS
History .....	HIST
Honors Program .....	HONP
Hotel Management .....	HMGT
Industrial Engineering .....	INEN
Industrial Relations .....	INRE
Installation and Repair of Computerized Systems .....	CSIR
Insurance .....	INSR
Italian .....	ITAL
Landscape Design .....	LADE
Latin .....	LATI
Linguistics .....	LING
Managerial Economics .....	MAEC
Marketing, Management, and Sales .....	MAMS
Marketing .....	MKTG
Materials Management .....	MMAT
Mathematics .....	MATH
Mechanical Engineering .....	MECN
Medical Emergencies .....	EMMT
Medical Sonography .....	SONO
Medical Technology .....	MEDT
Microbiology .....	MICR
Music .....	MUSI
Music Business Management .....	MUBA
Music Education .....	MUED
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 .....	PTHH
Physics .....	PHYS
Political Science .....	POLS
Portuguese .....	PORT
Psychology .....	PSYC
Psychosocial Human Services .....	HUSE
Public Administration .....	PUAD
Radiological Sciences .....	RASC
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

## Course Codification System

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

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

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

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

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

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

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

### a) Associate Degrees

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

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

### b) Bachelors' Degrees

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

## General Education Program

### Goals and Orientation of the General Education Curriculum

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

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

- |          |  |
|----------|--|
| Goal I   | To develop an educated person through the cultivation of skills, knowledge, values and attitudes that strengthen his intellectual and moral formation. |
| Goal II  | To develop a person interested in improving the personal, family, environmental, economic and political life of Puerto Rico and the rest of the world. |
| Goal III | To develop a person capable of communicating with propriety in Spanish or English and of using the other language at an acceptable level.              |
| Goal IV  | To develop a person capable of quantitative reasoning and the application of mathematical knowledge to diverse situations.                             |
| Goal V   | To develop a person with the basic knowledge of the use and function of the computer as a means of self-learning and for access to information.        |
| Goal VI  | To develop a person with a critical, analytical and constructive mind, capable of reflecting on human being's vital problems.                          |

- Goal VII To develop a person with an ethical conscience, capable of evaluating and making responsible decisions for his life and that of others.
- Goal VIII To develop a person with an esthetic sensitivity who appreciates artistic values and contributions.
- Goal IX To develop a person who understands and values the Christian faith from an ecumenical openness and its implications for culture.
- Goal X To develop a person who knows and understands the problems of humanity in its social and historical events.
- Goal XI To develop a person who can comprehend the phenomena of nature and its methods of study as well as the contributions of science for the betterment of mankind.
- Goal XII To develop a person who appreciates and maintains his physical, emotional, spiritual and social health in a way which promotes the individual and collective well being and quality of life.

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

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

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

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

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

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

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

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

## General Education Categories and Course Descriptions

### Basic Skills

**Basic Skills - 24 credits**

**Basic Skills: Spanish**

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

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

### **GESP 1021 BASIC SKILLS IN SPANISH AS A SECOND LANGUAGE**

Intensive development of linguistic skills (understanding, speaking, reading and writing). Study of the lexical and morphosyntactical aspects that will prepare students with no prior knowledge of Spanish to perform satisfactorily in that language.

3 credits

### **GESP 1022 INTERMEDIATE SPANISH AS A SECOND LANGUAGE**

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

3 credits

### **GESP 1101 LITERATURE AND COMMUNICATION: NARRATIVE AND ESSAY**

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

3 credits

### **GESP 1102 LITERATURE AND COMMUNICATION: POETRY AND THEATER**

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

3 credits

### **GESP 2023 WRITING AND COMPOSITION FOR NON-NATIVE SPANISH SPEAKERS**

The oral and written language through readings that develop the student's critical and creative capabilities: writing and composition of different types of prose: descriptive, narrative and expository. Prerequisite: GESP 1022.

3 credits

### **GESP 2203 WORLD VIEW THROUGH LITERATURE**

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

3 credits

### **Basic Skills: English**

Three (3) courses in English in the established sequence and level are required for a total of nine (9) credits. This curriculum is divided into three levels: elementary, intermediate and advanced. Students will be placed in English courses based on their score on the English examination of the College Board (or its equivalent). This placement will be made according to the following scores; elementary level, a score up to 450; intermediate level, scores from 451 to 599; advanced level, scores of 600 or above. Special cases, such as transfer students from universities or other higher education systems not requiring the College Board examination, as well as readmitted students who have not taken the basic skills in English requirements, will be required to have an interview with the Director of the English Department or the person designated, for their placement in the corresponding level. The elementary level courses (GEEN 1101, 1102 and 1103) and those of the intermediate level (GEEN 1201, 1202 and 1203) require additional time in an open laboratory (virtual).

**GEEN 1101 ENGLISH AS A SECOND LANGUAGE I**

Development of English as a second language. Emphasis on auditory comprehension, oral production and vocabulary acquisition in context. Requires additional time in a laboratory. Required course.

3 credits

**GEEN 1102 ENGLISH AS A SECOND LANGUAGE II**

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

3 credits

**GEEN 1103 ENGLISH AS A SECOND LANGUAGE III**

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

3 credits

**GEEN 1201 DEVELOPMENT OF ENGLISH THROUGH READING I**

Development of reading skills. Refinement of English through oral presentations, paragraph writing and vocabulary acquisition in context. Requires additional time in a laboratory. Required course.

3 credits

**GEEN 1202 DEVELOPMENT OF ENGLISH THROUGH READING II**

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

3 credits

**GEEN 1203 DEVELOPMENT OF ENGLISH THROUGH WRITING**

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

3 credits

**GEEN 2311 READING AND WRITING**

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

3 credits

**GEEN 2312 LITERATURE AND WRITING**

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

3 credits

**GEEN 2313 WRITING AND RESEARCH**

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

3 credits

**Basic Skills: Mathematics**

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

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

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

### **GEMA 1000 QUANTITATIVE REASONING**

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

3 credits

### **GEMA 1001 MATHEMATICS FOR TEACHERS I**

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

3 credits

### **GEMA 1002 MATHEMATICS FOR TEACHERS II**

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

3 credits

### **GEMA 1200 FUNDAMENTALS OF ALGEBRA**

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

3 credits

### **Basic Skills: Access to Information and Computers**

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

### **GEIC 1010 INFORMATION AND COMPUTER LITERACY**

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

3 credits

### **Philosophic and Esthetic Thought**

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

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

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

**GEPE 2020 HUMANISTIC STUDIES**

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

3 credits

**GEPE 3010 ART APPRECIATION**

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

3 credits

**GEPE 3020 MUSIC APPRECIATION**

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

3 credits

**GEPE 4040 ETHICAL DIMENSIONS OF CONTEMPORARY MATTERS**

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

3 credits

**Christian Thought**

Three credits are required in this category.

**GECF 1010 INTRODUCTION TO THE CHRISTIAN FAITH**

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

3 credits

**Historic and Social Context**

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

**GEHS 2010 HISTORICAL PROCESS OF PUERTO RICO**

Analysis of the historical process of Puerto Rico through the study of the economic, political, social and cultural transformations of Puerto Rico, with emphasis on the nineteenth century to the present. Required course.

3 credits

**GEHS 2020 GLOBAL VISION OF ECONOMY**

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

3 credits

**GEHS 3020 GLOBAL SOCIETY**

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

3 credits

**GEHS 3030 HUMAN FORMATION IN CONTEMPORARY SOCIETY**

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

3 credits

**GEHS 3040 INDIVIDUAL, SOCIETY AND CULTURE**

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

3 credits

**GEHS 4020 ANCIENT AND MEDIEVAL WESTERN CIVILIZATION**

Analysis of the most outstanding economic, political, social and cultural processes of Western Civilization from the appearance of human beings to the end of the Middle Ages. Prescribed distributive course.

3 credits

**GEHS 4030 MODERN AND CONTEMPORARY WESTERN CIVILIZATION**

Analysis of the most outstanding economic, political, social and cultural processes of Modern and Contemporary Western Civilization. Prescribed distributive course.

3 credits

**Scientific and Technological Context**

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

**GEST 2020 SCIENCE, TECHNOLOGY AND ENVIRONMENT**

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

3 credits

**GEST 3030 FUNDAMENTALS OF TERRESTRIAL AND ENVIRONMENTAL SCIENCES**

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

3 credits

## **Health, Physical Education and Recreation**

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

### **GEHP 3000 WELL-BEING AND QUALITY OF LIFE**

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

3 credits

# Undergraduate (Associate and Bachelor) Degree Programs

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

### Associate Program

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

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

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

#### REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN ACCOUNTING

General Education Requirements	24 credits
Major Requirements	32 credits
Elective Courses	<u>3</u> credits
Total	59

#### General Education Requirements - 24 credits

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

#### Major Requirements - 32 credits

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

### Bachelor's Program

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

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

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

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

All campuses are authorized to offer this Program.

#### REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN ACCOUNTING

General Education Requirements	48 credits
Core Course Requirements	41 credits
Major Requirements	39 credits
Elective Courses	<u>3 credits</u>
Total	131

#### General Education Requirements - 48 credits

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

#### Core Course Requirements - 41 credits

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

#### Major Requirements - 39 credits

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

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

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

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

## Minor in Accounting

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

All campuses are authorized to offer this minor.

### Requirements for the Minor in Accounting - 25 credits

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

## Minor in Financial Accounting

The Bayamón Campus is 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

## Airway Sciences (B.S.)

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

## Descriptions of the Majors

### 1. Aircraft Systems Management (Professional Pilot)

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

Students are responsible for requesting the examinations necessary to obtain the aforementioned certificates from the FAA. In addition, they are responsible for complying with the FAA regulations, the procedures stipulated by the Aircraft Operations Manual, and the Flight Operations Manual of the School of Aeronautics, at all times in which

they are operating an aircraft of the Institution. Failure to comply with the regulations and procedures constitutes a violation to the stipulated security norms and could result in the suspension of the student from the program. Students of the Program may be tested for drug and alcohol use, in agreement with the Federal Aviation Regulations (FAR).

## **2. Aviation Sciences Management**

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

### **Minor in Air Traffic Control**

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

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

1. Be registered in a Bachelor's program in the Bayamón Campus.
2. Complete a Bachelor's Degree in the Bayamón Campus with the following requirements:
  - a) Have a minimum academic index of 2.8.
  - b) Master the English language orally as well as in writing.
  - c) Be interviewed by the evaluation panel of the minor in Air Traffic Control.
  - d) Be under 30 years of age when completing the specialization requirements and meeting the job requirements of the FAA.

### **Specific Admission Requirements for the Major in Aviation Sciences Management**

Candidates must:

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

### **Specific Admission Requirements for the Aircraft Systems Management Program (Professional Pilot)**

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

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

### **Admission of Transfer Students**

Students from other programs of Inter American University of Puerto Rico or from other recognized universities or colleges may register in the program, if they meet the admission requirements of Inter American University and

the Airway Science Programs. They must also have approved the Precalculus course (MATH1500) or its equivalent with a minimum grade of C and be recommended by the Dean of the School of Aeronautics.

### Graduation Requirements

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

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

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

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

The Bayamón Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN AIRWAY SCIENCES

General Education Requirements	42 credits
Core Course Requirements	48 credits
Major Requirements	<u>34 credits</u>
Total	124

#### General Education Requirements - 42 credits

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

Students will take the following courses in Spanish and English:

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

#### Core Course Requirements - 48 credits

AWSC	2000	Introduction to Aeronautics and Space	3
AWSC	2200	Government and Regulations in Aviation	3
AWSC	3600	Flight Safety and Security	3
AWSC	4000	Airport Development and Operations	3
AWSC	4100	Career Development for Aerospace Professionals	1
BADM	1900	Fundamentals of Management	3
ENGL	2075	Technical Literature	3
ENGL	3310	Public Speaking	3

MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MATH	1500	Pre-Calculus	5
MATH	2251	Calculus I	5
PHYS	3001	General Physics I	4
PSYC	1051	General Psychology I	3

### Major Requirements

#### Aircraft Systems Management (Professional Pilot)

##### Aircraft Systems Management (Professional Pilot) - 34 credits

AWSC	2115	Theory of Private Pilot	5
AWSC	2116	Flight Laboratory for Private Pilot	1
AWSC	3140	Instrument Rating	4
AWSC	3160	Commercial Pilot	3
AWSC	4305	Aviation Meteorology	3
AWSC	4310	Human Factors for Pilots	3
AWSC	4320	Advanced Aircraft Systems	3
AWSC	4340	Applied Aerodynamics	3
AWSC	4360	Flight Instructor	3
AWSC	4364	Flight Instructor: Instrument	1
AWSC	4373	Multi-engine Instructor	1
AWSC	4384	Training Techniques for Flight Crew (CRM Training)	2

Select three credits from the following:

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

#### Aviation Sciences Management

##### Aviation Sciences Management - 34 credits

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

Select nine credits from the following:

AWSC	2300	Airline Passenger Services	3
AWSC	4055	Management of Air Cargo	3
AWSC	4650	Foundations of Airline Finance	3
AWSC	4660	Fixed Based Operators Management	3
AWSC	4670	International Commerce and Aviation	3

## Minor in Air Traffic Control (Airway Science)

REQUIREMENTS FOR THE MINOR IN AIR TRAFFIC CONTROL - 26 credits

AWSC	2115	Theory of Private Pilot	5
AWSC	3000	Aeronautical Language Skills	3
AWSC	3411	Principles of Air Traffic Control	3
AWSC	4305	Aviation Meteorology	3
AWSC	4515	Air Traffic Control I: Tower Operation	4
AWSC	4516	Air Traffic Control II: Radar Operation	4
AWSC	4517	Air Traffic Control III: En-Route and in Terminals	4

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

The Bayamón Campus is authorized to offer this Minor.

## 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	Theory of Private Pilot	5
AWSC	2116	Flight Laboratory for Private Pilot	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.

## Art (B.A.)

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

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

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

The San Germán Campus is authorized to offer this Program.

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN VISUAL ARTS

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

General Education Requirements	48 credits
Core Course Requirements	36 credits
Major Requirements	21 credits
Elective Courses	<u>9 credits</u>
Total	114

For the major in Art Education

General Education Requirements	51 credits
Core Course Requirements	39 credits
Major Requirements	48 credits
Elective Courses	<u>3</u> credits
Total	141

### General Education Requirements:

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

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

For the major in Art Education:

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

### Core Course Requirements - 36 or 39 credits

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

Note: \*Required only of students in Art Education.

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

### Ceramics and Sculpture

#### Ceramics and Sculpture - 21 credits

Required courses - 9 credits

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

Four courses from the following - 12 credits

ARTS	1100	Color Theory	3
ARTS	2100	Designs in Native Materials	3

ARTS	2105	Designs in Manufactured Materials	3
ARTS	2700	Multiple Techniques	3
ARTS	3105	Metal Jewelry	3
ARTS	3150	Drawing II - Figure	3
ARTS	3303	Ceramics III	3
ARTS	3351	Serigraphy I	3
ARTS	4202	Airbrush	3
ARTS	4254	Metal Sculpture	3
ARTS	4256	Human Sculpture	3
ARTS	4303	Clays and Glazes	3
ARTS	4352	Layout Design	3
ARTS	4360	Digital Art	3
ARTS	4365	Computerized Graphic Design	3

## Painting and the Graphic Arts

### Painting and the Graphic Arts - 21 credits

#### Required Courses - 9 credits

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

Four courses from the following - 12 credits

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

## Photography

### Photography - 21 credits

#### Required Courses - 9 credits

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

Four courses from the following:

ARTS	1100	Color Theory	3
ARTS	2700	Multiple Techniques	3
ARTS	3351	Serigraphy I	3
ARTS	3450	Color Photography	3
ARTS	4150	Advanced Drawing	3
ARTS	4202	Airbrush	3
ARTS	4352	Layout Design	3
ARTS	4353	Lithography	3
ARTS	4355	Photo Serigraphy	3
ARTS	4360	Digital Art	3
ARTS	4365	Computerized Graphic Design	3
ARTS	4500	Stage Design	3

## Art Education (Visual Arts)

### Art Education - 48 credits

#### PROFESSIONAL COURSES IN ART EDUCATION

##### I. Foundation

EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	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.

## **Audiovisual Communications Technology (A.A.S.)**

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

### **Admission Requirements**

All students interested in this program must meet the admission requirements appearing in the General Catalog. In addition, they must have a minimum high school grade point index of 2.50. Students who initially do not meet

the minimum requirements may be admitted to the program if, upon completion of their first year of studies (24 credits), they obtain a minimum grade point index of 2.50.

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

### Academic Progress Requirements

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

The Bayamón Campus is authorized to offer this Program.

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

General Education Requirements	24 credits
Major Requirements	<u>34 credits</u>
Total	58

#### General Education Requirements - 24 credits

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

#### Major Requirements - 34 credits

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

### Auditing (B.B.A.)

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

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

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

The Bayamón Campus is authorized to offer this Program.

## REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN AUDITING

General Education Requirements	48 credits
Core Course Requirements	41 credits
Major Requirements	39 credits
Elective Courses	<u>3</u> credits
Total	131

### General Education Requirements - 48 credits

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

### Core Course Requirements - 41 credits

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

### Major Requirements - 39 credits

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

### 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	3063	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

## Bioinformatics (B.S.)

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

The Bayamón Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN BIOINFORMATICS

General Education Requirements	45 credits
Major Requirements	21 credits
Related Course Requirements	61 credits
Prescribed Distributive Requirements	3 credits
Elective Courses	<u>3 credits</u>
Total	133

#### 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 from the Scientific and Technological Context Category. The students of this program will take 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 - 21 credits

BIIN	2150	Introduction to Bioinformatics	4
BIIN	3000	Programming for Bioinformatics	4
BIIN	3220	Biochemistry	3
BIIN	4000	Databank	4
BIIN	4010	Computational Biology	3
BIIN	4020	Medical Information	3

#### Related Course Requirements - 61 credits

BIOL	1101, 1102	Modern Biology I, II	6
BIOL	1103, 2013	Skills Laboratory I, II	2
BIOL	2153	Biostatistics	3
BIOL	2155	Genetics	3
BIOL	3105	General Microbiology	4
BIOL	4604	Cellular and Molecular Biology	3
BIOL	4605	Skills Laboratory III	2
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221, 2222	Organic Chemistry I, II	8
MATH	1500	Precalculus	5

MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
PHYS	3001, 3002	General Physics I, II	8

**Prescribed Distributive Requirements - 3 credits**

Three additional credits selected from courses BIOL 4403 – Evolution; COMP 3970 - Special Topics; BIOL 3250 - Molecular Biotechnology; or MATH 3350 Linear Algebra.

**Biology (B.S.)**

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

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 or the Prescribed Distributive Requirements

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

**REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN BIOLOGY**

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

**General Education Requirements - 45 credits**

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

**Major Requirements - 65 credits**

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

MATH	1500	Precalculus	5
PHYS	3001, 3002	General Physics I, II	8

**Prescribed Distributive Requirements - 12 credits**

Students will select 12 credits from the following courses:

BIOL	2800	Introduction to Astrobiology	3
BIOL	3213	Parasitology	3
BIOL	3214	Entomology	3
BIOL	3216	Animal Behavior	3
BIOL	3219	Biology of the Invertebrates	3
BIOL	3309	Food Microbiology	3
BIOL	3405	Immunology	3
BIOL	3504	Environmental Health	3
BIOL	3505	Environmental Laws, Policies and Regulations	3
BIOL	3904	Toxicology	3
BIOL	4105	Fundamentals of Geographic Information Systems (GIS)	3
BIOL	4109	General Physiology	3
BIOL	4303	Mycology	3
BIOL	4304	Medical Mycology	3
BIOL	4305	Medical Microbiology	3
BIOL	4306	Virology	3
BIOL	4307	Microtechniques	2
BIOL	4403	Evolution	3
BIOL	4405	Embryology	3
BIOL	4407	Human Anatomy	3
BIOL	4433	Industrial Microbiology	3
BIOL	4494	Pharmacology	3
BIOL	4503	Conservation and Management of Natural Resources	3
BIOL	4600	Histology	3
BIOL	4905	Pathology	3
BIOL	4909	Public Health	3
BIOL	4912	Practicum in Biology	3
BIOL	4953	Research Methods	3
BIOL	4955	Integrating Seminar	1
BIOL	4960	Bioethics	3
MATH	2250	Calculus for Biology and Environmental Sciences	3
MATH	2251	Calculus I	5

**Minor in Marine Science**

The Bayamón Campus is authorized to offer this minor.

**REQUIREMENTS FOR THE MINOR IN MARINE SCIENCE - 18 credits**

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

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

## Biomedical Sciences (B.S.)

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

Students of this Program must pass all Biomedical Sciences courses and the course MATH 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 of Bachelors' Degrees." Students of this Program are exempt from taking courses in the Scientific and Technological Context category. Students of this Program will take GEMA 1200 in the Basic Skills in Mathematics category.

### Major Requirements - 56 credits

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

MATH	1500	Precalculus	5
PHYS	3001	Physical General I	4
PHYS	3002	Physical General II	4

**Prescribed Distributive Requirements - 12 credits**

Twelve (12) credits from the following courses:

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

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

**Biotechnology (B.S.)**

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

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

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

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

**REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN BIOTECHNOLOGY**

General Education Requirements	45 credits
Major Requirements	85 credits
Elective Courses	<u>6</u> credits
Total	136

**General Education Requirements - 45 credits**

Forty-five (45) credits are required as explained in the section “General Education Requirements for Bachelors’ Degrees.” Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students who have obtained a score equal to or greater than 550 in the area of mathematical achievement in the “College Entrance Examination Board” test are exempt from taking GEMA 1200.

### Major Requirements - 85 credits

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

### Minor in Biotechnology

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

#### Requirements - 19 credits

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

### Business Administration (A.A.S.)

#### Associate Program

The Associate of Applied Sciences Degree in Business Administration offers the student the opportunity to develop the basic skills and knowledge in the area of business administration and enterprise development. The Program offers the student the opportunity to continue studies leading to the Bachelor's degree in Business Administration. The student must pass the courses required in the major with the minimum grade of C.

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

## REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN BUSINESS ADMINISTRATION

General Education Requirements		24 credits
Major Requirements		<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
GEHS	2010	Historical Process of Puerto Rico		3
GEIC	1010	Information and Computer Literacy		3
GEMA	1200	Fundamentals of Algebra		3

### Major Requirements - 32 credits

ACCT	1161	Introduction to Financial Accounting		4
ACCT	1162	Introduction to Managerial Accounting		4
BADM	1900	Fundamentals of Management		3
BADM	3900	Business Information Systems		3
ENTR	2200	Fundamentals of Entrepreneurship		3
FINA	2100	Managerial Finance		3
MAEC	2211	Principles of Economics (Micro)		3
MAEC	2221	Basic Statistics		3
MKTG	1210	Introduction to Marketing		3
OMSY	3030	Business Communication Workshop in Spanish or		
OMSY	3040	Business Communication Workshop in English		3

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

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

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

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

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

1. Develop and implement cardio-respiratory care to support, maintain and restore the respiratory health of patients with cardiopulmonary problems.
2. Use established communication channels to administer respiratory therapy to patients in acute or critical condition according to the life cycle.
3. Collaborate with other members of the health team to assist in the diagnosis, treatment, evaluation, control, rehabilitation and prevention in patients in order to offer quality care.
4. Consider research findings in the respiratory field to justify the interventions.

5. Have the knowledge and minimum skills to perform their role effectively when offering care to patients.
6. Develop skills to handle the technological equipment when offering cardio-respiratory care in any scenario where they may offer their services.
7. Comply with the provisions of the laws that regulate their practice and with the code of ethics to uphold the standards of honesty.

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

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

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

### **Admission Requirements**

1. Comply with all admission norms established in the General Catalog
2. To be a candidate for admission to the Program, students must have \:
  - a. a minimum average of 2.50
  - b. a negative Criminal Record issued within the last sent 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.
3. To be a candidate for admission at the third level (courses of the third year) for the Bachelor's Degree in Respiratory Therapy, students must:
  - a. have satisfactorily completed the requirements of the first two years of the Bachelor's Degree in Cardio-Respiratory Care.
  - b. present evidence of having an Associate Degree in of Cardio-Respiratory care from a recognized and accredited higher education institution. Candidates having an associate degree must complete any general education requirement established by the institution and the campus to receive the degree.

### **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, 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.

- 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.

### Graduation Requirements

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

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

### Associate Program

The Barranquitas and Guayama 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>53</u> credits
Total	77

#### General Education Requirements - 24 credits

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

#### Major Requirements - 53 credits

CARD 1130	Cardio-Respiratory Care I	3
CARD 1231	Cardio-Respiratory Care II	3
CARD 1210	Introduction to Theory and Practice in Cardio-Respiratory Care	3
CARD 1220	Pharmacology Applied to Cardio-Respiratory Care	2
CARD 2110	Cardio-Respiratory Pathophysiology I	3
CARD 2120	Diagnosis Tests and Pulmonary Function	2
CARD 2140	Cardio-Respiratory Care and Rehabilitation	3
CARD 2190	Preparation for Local and National Board Exams	2
CARD 2233	Mechanical Ventilation	5
CARD 2234	Practice in Mechanical Ventilation	2
CARD 2910	Integrated Practice I	4
BIOL 1003	Skills Laboratory I	1
BIOL 2151	Human Anatomy and Physiology I	3
BIOL 2152	Human Anatomy and Physiology II	3
BIOL 2154	Foundations of Microbiology	3
CHEM 2110	General Chemistry for Health Science	4
PHYS 1013	General Physics and its Applications	4

### Bachelor's Program

The Guayama Campus is authorized to offer this Program.

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

General Education Requirements	45 credits
Major Requirements	75 credits
Elective Courses	<u>6</u> credits
Total	126

### General Education Requirements - 45 credits

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

### Major Requirements - 75 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	Preparation for Local and National Board Exams	2
CARD	2233	Mechanical Ventilation	5
CARD	2234	Practice in Mechanical Ventilation	2
CARD	2910	Integrated Practice I	4
CARD	3120	Principles of Research in Cardio-Respiratory Care	2
CARD	3130	Advanced Measures of Cardiopulmonary Resuscitation	4
CARD	3230	Leadership and Administration in Cardio-Respiratory Care	3
CARD	4910	Integrated Practice II	4
CARD	4920	Cardio-Respiratory Care in Neonatology and Pediatrics	4
CARD	4930	Advanced Cardio-Respiratory Care	4
CARD	4970	Seminar	2
BIOL	1003	Basic Concepts of Biology	3
BIOL	2151	Human Anatomy and Physiology I	3
BIOL	2152	Human Anatomy and Physiology II	3
BIOL	2154	Foundations of Microbiology	3
CHEM	2110	General Chemistry for Health Science	4
PHYS	1013	General Physics and its Applications	4

### Chemistry (B.S.)

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

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

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

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

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN CHEMISTRY

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

### General Education Requirements - 45 credits

Forty-five (45) credits are required as explained in the section “General Education Requirements for Bachelors’ Degrees.” Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students of this Program are exempt from taking the course GEST 2020 or 3030 in the Scientific and Technology Context category.

### Major Requirements - 70 credits

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

### Prescribed Distributive Requirements – 6 or 7 credits

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

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

### Minor in Chemistry

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

### REQUIREMENTS FOR THE MINOR IN CHEMISTRY - 24 credits

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

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

## Communications (B.A.)

The Bachelor of Arts Program in Communications aims to provide a theoretical and practical preparation in the field of social communication by emphasizing the areas of public relations and advertising. 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

General Education Requirements	48 credits
Major Requirements	33 credits
Specialization Requirements	30 credits
Elective Courses	<u>9</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.” For the Specialization in Public Relations and Advertising, students will take the nine credits in English Communication Skills in the sequences GEEN 1201, 1202, 2203 or 2311, 2312, 2313.

### **Major Requirements - 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 of Communication	3
BADM	1900	Fundamentals of Management	3
MKTG	1210	Introduction to Marketing	3

### **Specialization 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 Advertising	3

Students are required to take the following specialization:

### **Public Relations and Advertising (Communications)**

#### **Public Relations and Advertising - 21 credits**

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

### **Communication in Media Production (B.S.)**

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

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

#### **Admission Requirements**

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

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

### **Retention Requirements**

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

### **Graduation Requirements**

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

The Bayamón Campus is authorized to offer this Program.

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

General Education Requirements	48 credits
Major Requirements	60 credits
Submajor Requirements	12 credits
Elective Courses	<u>6</u> credits
<b>Total</b>	<b>126</b>

### **General Education Requirements - 48 credits**

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

### **Major Requirements - 60 credits**

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

### **Submajor Requirements – 12 credits**

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

## Writing for the Media

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

## Graphic Design

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

## Photography

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

## Radio Production

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

## Media Integration

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

## 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	2511	Computer Graphic Production I	3
COMU	2610	Illumination in Photography	3
COMU	2621	Digital Photography Manipulation	3

## Minor in Technology of Audio-visual Communication

### Requirements for the Minor in Technology of Audio-visual Communication - 18 credits

The Bayamón Campus is authorized to offer this minor.

COMU	1005	Introduction to Educational Technology	3
COMU	1025	Introduction to Graphic Production	3
COMU	1031	Photographic Techniques I	3

COMU	1060	Administration of Educational Technology Centers	3
COMU	2121	Media Writing I	3
COMU	2223	Sound Production Techniques	3

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

### Associate Program

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

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

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

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

#### REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN COMPUTER SCIENCE

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

#### General Education Requirements - 24 credits

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

#### Major Requirements - 36 credits

COMP	2015	Web Page Design	3
COMP	2060	Microcomputer Repair and Maintenance	3
COMP	2110	Introduction to Computer Science	3
COMP	2120	Programming Logic	3
COMP	2300	Visual Programming	3
COMP	2315	Structured Programming	3
COMP	2400	Object Oriented Programming	3
COMP	2501	Discrete Computational Structures I	3
COMP	2555	Applications in Relational Databases	3
COMP	2600	Business Programming	3
COMP	2600	Business Programming	3
COMP	2610	WEB Programming	3
COMP	2970	Seminar	3

### Bachelor's Program

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

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

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

1. The student has been working for a minimum period of two years in a company within the five-year period immediately prior to the date of the request.
2. The student presents a certification and letter from the employer or the Human Resources Office of the company that specifies:
  - a. Years of experience
  - b. Period of time employed
  - c. Position (s) occupied
  - d. Description of tasks
  - e. Any other evidence of professional performance during the time of employment.
3. The student pays 50% of the cost of registration for the practice or internship course for which credit is requested.

The Aguadilla, Arecibo, Barranquitas, Bayamón, Fajardo, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Aguadilla Campus is also authorized to offer this Program through distance learning. The Fajardo Campus is authorized to offer 50 percent of the courses online.

#### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN COMPUTER SCIENCE

General Education Requirements	48 credits
Major Requirements	71 credits
Prescribed Distributive Requirements	9 credits
Elective Courses	<u>3 credits</u>
<b>Total</b>	<b>131</b>

#### **General Education Requirements - 48 credits**

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

#### **Major Requirements - 71 credits**

COMP	2110	Introduction to Computer Science	3
COMP	2120	Programming Logic	3
COMP	2300	Visual Programming	3
COMP	2315	Structured Programming	3
COMP	2400	Object Oriented Programming	3
COMP	2501	Discrete Computational Structures I	3
COMP	2502	Discrete Computational Structures II	3
COMP	2900	Data Structures	3
COMP	3200	Assembler Language	3
COMP	3400	Software Engineering	3
COMP	3500	Operating Systems	3
COMP	3600	Computer Graphics	3
COMP	3850	Database Theory	3

COMP	4200	Teleprocessing and Networks	3
COMP	4420	Systems Design and Analysis	3
COMP	4430	Systems Development and Implementation	3
COMP	4600	Computer Architecture	3
COMP	4910	Internship and Professional Ethics	3
MATH	1500	Precalculus	5
MATH	2100	Introduction to Probability and Statistics	3
MATH	2251	Calculus I	5
PHYS	3001	General Physics I	4

### **Prescribed Distributive Requirements - 12 credits**

Nine (9) credits from the following courses.

COMP	2550	Logical and Functional Programming	3
COMP	2600	Commercial Programming	3
COMP	3010	File Management and Organization	3
COMP	3410	Computer Security	3
COMP	3800	Programming Languages	3
COMP	3970	Special Topics	1-6
COMP	4000	Microprocessors Architecture and Programming	3
COMP	4160	Parallel Processing	3
COMP	4250	Database Development, Implementation and Administration	3
COMP	4270	Automaton Theory	3
COMP	4280	Compilers	3
COMP	4480	Artificial Intelligence	3
COMP	4500	Expert Systems	3
COMP	4580	Introduction to Robotics	3

### **Minor in Basic Computation Skills**

The Minor in Basic Computation Skills is designed to provide to the student of any discipline the basic knowledge and skills for the effective use of computers.

The San Germán Campus is authorized to offer this minor.

### **Requirements for the Minor in Basic Computation Skills - 18 credits**

COMP	2015	Web Page Design	3
COMP	2060	Microcomputer Repair and Maintenance	3
COMP	2110	Introduction to Computer Science	3
COMP	2120	Programming Logic	3
COMP	2300	Visual Programming	3
COMP	2315	Structured Programming	3

### **Minor in Computer Networks**

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

### **Requirements for the Minor in Computer Networks - 21 credits**

COMP	3500	Operating Systems	3
COMP	4200	Teleprocessing and Networks	3
COMP	4220	Advanced Teleprocessing and Networks	3

COMP	4230	Installation and Configuration of Networks Physical Components	3
COMP	4235	Operating Systems for Networks	3
COMP	4240	Network Management	3
COMP	4600	Computer Architecture	3

### Minor in Computer Science

The Bayamón Campus is authorized to offer this minor.

#### Requirements for the Minor in Computers Science - 27 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	2900	Data Structures	3
COMP	3400	Software Engineering	3
COMP	3850	Theory of Databanks	3

### Minor in Design and Development of Video-games

#### Requirements for the Minor in Design and Development of Video-games - 18 credits

The Bayamón Campus is authorized to offer this minor.

GAME	1100	Design of Video-games	3
GAME	3101	Video Game Programming I	3
GAME	3102	Video Game Programming II	3
GAME	3201	Graphics for Video Games I	3
GAME	3202	Graphics for Video Games II	3
GAME	3400	Artificial Intelligence for Video Games	3

## Computerized Management Information Systems (A.A.S.)

### Associate Program

The Associate of Applied Science Degree in Computerized Management Information Systems aims to prepare students for working with information systems in companies and giving them an understanding of the goals, functions and operations of business organizations as well as making them knowledgeable of information needs and the role of information systems in these organizations. In addition, it provides for the development of analytical and technical skills to identify, to study and to solve information management problems. Importance is given to communication skills that permit an effective interaction with other members of a business organization and especially with the users and those that install or implement computerized management information systems.

The Barranquitas Campus is authorized to offer this Program by both presential and distance learning modalities.

#### REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN COMPUTERIZED MANAGEMENT INFORMATION SYSTEMS

General Education Requirements	24 credits
Core Course Requirements	16 credits
Major Requirements	21 credits
Elective Courses	<u>3</u> credits
Total	64

### **General Education Requirements - 24 credits**

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

### **Core Course Requirements - 16 credits**

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3
MAEC	2221	Basic Statistics	3
MAEC	2211	Principles of Economics (Micro)	3
MKTG	1210	Introduction to Marketing	3

### **Major Requirements - 21 credits**

CMIS	1100	Introduction to Information Systems	3
CMIS	1200	Programming Algorithms	3
CMIS	2310	Visual Programming in Information Systems	3
CMIS	2450	Introduction to the Internet in the Enterprise	3
CMIS	3130	Database Design and Management	3
CMIS	3350	Telecommunications and Business Networks	3
CMIS	3420	Information System Analysis and Design	3

## **Conflict Mediation (Professional Certificate)**

The purpose of this professional certificate is to prepare professional with theoretical and practical knowledge in the resolution of conflicts, essentially in mediation with specialties in different fields. The Program constitutes an answer to the urgent need to prepare professionals with the required competences so they can participate in situations of conflicts in varied scenarios.

The specialized professional certificate in conflict mediation is designed to provide knowledge of concepts, theories, approaches, methods, principles, techniques and strategies for resolution of conflicts and mediation. It will allow the professional to be acquainted with diverse scenarios where conflicting situations arise and the forms, methods and processes of mediation intervention. In addition, it will allow the student to develop the skills for the design, implementation and evaluation of programs of resolution of conflicts.

The participants of this certificate will have the opportunity to choose one of the following three specializations: Conflict Mediation in Family Relations, Conflict Resolution in the School Scenario and Conflict Resolution in the Work Scenario.

### **General Requirements**

The admission, retention, satisfactory academic progress, and other requirement established in the current General Catalog are required.

### **Specific Admission Requirements**

To be admitted to the Specialized Professional Certificate in Conflict Mediation, students must:

1. Possess at least a bachelor's degree from an accredited institution.
2. Have passed a course or have evidence of workshops in the use of computer technology.

Admitted students that wish to obtain the certification as a neutral examiner (mediator) issued by the Alternative Conflict Resolution Methods Office may request the certificate once they have finished the core courses of the specialized professional certificate in conflict mediation, and the other requirements established by this Office.

### **Graduation Requirements**

To obtain the professional certification in mediation it is required to have passed the 17 required credits with a minimum general grade index of 3.0.

The Aguadilla Campus is authorized to offer this professional certificate.

### **Core Course Requirements - 7 credits (21 units) \***

MEDI	4510	Introduction to Alternative Methods for Conflict Resolution	1
MEDI	4520	Legal and Constitutional Bases for Conflict Mediation	1
MEDI	4530	Communication Skills and Emotional Management	1
MEDI	4540	Structure and Processes of Conflict Mediation	2
MEDI	4550	Domestic Violence and its Implications in Mediation	1
MEDI	4560	Application and Basic Practice in Conflict Mediation	1

### **Specialization Requirements - 10 credits (30 units)**

#### **Conflict Mediation in Family Relations**

MEDI	4571	Structures and Models of Mediation in Family Systems	2
MEDI	4572	Conflict Mediation in Divorce Cases	2
MEDI	4573	Conflict Mediation with Families and Couples that Stay Together	2
MEDI	4574	Domestic Legal Conflict Mediation	2
MEDI	4575	Application and Practice Cases in Family Conflicts	2

#### **Conflict Resolution in the School Scenario**

MEDI	4581	Conceptual Frameworks of School Mediation	2
MEDI	4582	Conflict Resolution Programs and School Mediation	2
MEDI	4583	Conflict Resolution in Elementary School K-6	2
MEDI	4584	Peer Mediation in Junior and High Schools 7-12	2
MEDI	4585	Application and Practice Cases in School Conflicts	2

#### **Conflict Resolution in the Work Scenario**

MEDI	4591	Models and Laws of Labor Relations	2
MEDI	4592	Labor-Management Conflict Mediation	2
MEDI	4593	Collective Bargaining	2
MEDI	4594	Executive-Managerial Conflict Mediation	2
MEDI	4595	Application and Practice Cases of Labor Conflicts	2

\*Students that provide evidence of being certified as Mediators by the Alternative Conflict Resolution Methods Office of the Supreme Court of Puerto Rico may have the core courses validated if they:

1. Make a formal request to the Director of the Department, in which they provide evidence, in original, of the Certification issued by the Alternative Conflict Resolution Methods Office of the Supreme Court of Puerto Rico.
2. Present evidence of having completed the hours required by the Methods Office to obtain the Certification as a Mediator.
3. Pay 50% of the registration cost of the core courses.

## Corporate Communication (B.A.)

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.

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	66 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>3</u> credits
Total	123

#### General Education Requirements – 48 credits

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

#### Major Requirements - 66 credits

COMU	1020	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	3001	Strategic Planning	3
COMU	3013	Public Relations Plan	3
COMU	4320	Legal and Ethical Aspects of Communication	3
COMU	4976	Graphical Design and Animation	3
ENGL	3007	Advanced Composition	3
ENGL	3025	Writing of Professional Documents	3
ENGL	3310	Advanced Oral Communication	3
ENGL	4015	Translation Workshop	3
MAEC	2221	Basic Statistics	3
MKTG	1210	Introduction to Marketing	3
MKTG	2220	Marketing Management	3
MKTG	3230	Integrated Marketing Communication	3
MKTG	3238	Principles of Publicity	3
PSYC	3313	Industrial-Organizational Psychology	3
SPAN	3015	Oral Communication	3
SPAN	3020	Writing Workshop	3
SPAN	3025	Writing of Professional Documents	3
SPAN	4015	Translation Workshop	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. Courses COMU 4491 or COMU 4492 will be taken outside Puerto Rico.

COMU	3000	Research Processes in Communications	3
COMU	4444	Fundamentals of Media Research	3
COMU	4491	Professional Practice	6
COMU	4492	Academic Internship	6

## Criminal Justice (A.A. and B.A.)

### Associate Program

The Associate of Arts Degree in Criminal Justice aims to prepare students for a career in criminal justice by equipping them with the information necessary to continue studies towards the baccalaureate degree. The curriculum includes criminal investigation, penal law, organization and penal system management constitutional law, criminal evidence, delinquent behavior and administration of justice.

Upon completion of the Program, students will demonstrate ability to:

1. Compete successfully for jobs at the initial level in criminal justice.
2. Apply the theories of criminal justice in practices and existing regulations.
3. Solve conflicts in a variety of situations.
4. Identify cultural differences and the way these differences affect decisions and behavior.
5. Apply highly ethical norms in studies of criminal cases and simulations.
6. Apply penal laws in a variety of cases or simulations.

Graduates of this Program can work as officers of correctional institutions, customs inspectors, private investigators, and as State and Municipal police officers.

Some practice centers may require a certificate of no criminal record.

### 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</u> credits
Total	63

### General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6

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

### **Core Course Requirements - 24 credits**

CJUS	1000	Introduction to Criminology	3
CJUS	2050	Victims of Crime	3
CJUS	2090	Juvenile Justice System	3
CJUS	3025	Criminal Law	3
POLS	1011	Introduction to Political Science	3
PSYC	1051	General Psychology I	3
SOCI	1030	Introduction to Sociology	3
SOCI	2080	Criminal Justice Systems	3

### **Major Requirements - 15 credits**

CJUS	2070	Human and Civil Rights	3
CJUS	3030	Interviews and Interrogation	3
CJUS	3035	Special Criminal Laws	3
CJUS	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.

### **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 Aguadilla, Arecibo, Barranquitas, Fajardo, Guayama and Metropolitan campuses are authorized to offer the major in Criminal Investigation. The Ponce Campus is authorized to offer both majors and is also authorized to offer the major in Criminal Investigation through distance learning. The Bayamón Campus is authorized to offer the major in Forensic Investigation.

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN CRIMINAL JUSTICE

General Education Requirements	48 credits
Core Course Requirements	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 two courses, from the following alternatives in the Historic and Social Context category: GEHS 2020, 4020, 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	2075	Social Deviation	3
CJUS	3015	Women Faced with Crime	3
CJUS	3055	Federal Jurisdiction	3
CJUS	397	Special Topics*	3
CJUS	4020	Alcoholism and Drug Addiction	3
CJUS	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, the 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 - 18 credits**

At least one of the following majors is required:

**Criminal Investigation (Criminal Justice)**

**Criminal Investigation - 21 credits**

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

**Forensic Investigation (Criminal Justice)**

**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.

### Requirements of the Minor in Criminal Investigation - 18 credits

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

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 Research	3
SOCI	2080	Criminal Justice System	3

### Minor in Penology

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

### Requirements of the Minor in Penology - 18 credits

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

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 (B.S.S.)

The Program leading to the Bachelor of Social Sciences degree in Criminology is designed to promote the development of a judicious Sociology professional who demonstrates the knowledge, skills and attitudes to offer services to private and governmental agencies. This knowledge is based on concepts and principles of social sciences and especially of criminology.

This Program aspires to prepare graduates capable of performing in social control agencies such as: correctional systems, public and private security, among others. The main component of this Bachelor's Program is aimed at scientific social research to find solutions to criminality.

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

### REQUIREMENTS FOR THE BACHELOR OF SOCIAL SCIENCES DEGREE IN CRIMINOLOGY

General Education Requirements	48 credits
Core Course Requirements	33 credits
Prescribed Distributive Requirements	9 credits
Major Requirements	15 credits
Elective Courses	<u>6 credits</u>
Total	111

## General Education Requirements - 48 credits

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

## Core Course Requirements - 33 credits

CRIM	2010	Legal Sociology	3
CRIM	3020	Statistical Methods Applied to Criminology	3
CRIM	3838	Deviant Behavior, Antisocial and Criminal Sociology	3
CRIM	4030	Contemporary Social Problems	3
CJUS	1000	Introduction to Criminology	3
CJUS	2050	Victims of Crime	3
CJUS	2070	Human and Civil Rights	3
POLS	1011	Introduction to Political Science	3
PSYC	1051	General Psychology I	3
SOCI	1030	Introduction to Sociology	3
SOCI	2050	Urban Society and its Transformation	3

## Prescribed Distributive Requirements - 9 credits

Select three courses from the following

CRIM	3014	Crime and Media	3
CRIM	4020	Terrorism and Society	3
CJUS	3027	White Collar Crimes	3
CJUS	3040	Penology	3
SOCI	2020	Structure, Continuity and Change	3

## Major Requirements - 15credits

CRIM	3021	Gender and Crime	3
CRIM	3040	Mental Disorders and Criminology	3
CRIM	4010	Criminological Social Research	3
CRIM	4910	Internship in Criminology	3
CRIM	4970	Contemporary Theoretical Debates in Criminology	3

## Design (B.A.)

The Bachelor of Arts Degree in Design has as its goal to prepare professionals in the diverse areas related to design in two and three dimensions. The principles and foundations of visual language will be studied. The program focuses on the study of the design through contemporary and traditional media and techniques. It also complements the artistic and creative vision with a pragmatic vision that promotes the entrepreneurial development of the student.

At the intellectual level, this Program will offer excellent knowledge of the history and philosophy of art and of esthetics. It emphasizes the design and production of functional articles that have esthetic qualities, by using traditional, as well as digital media. The graduates of this Program will be able to develop their cognitive and creative capacities, as well as their critical judgment through the design of artistic objects and the exposure to works of art and design of diverse eras and cultures with emphasis on the contemporary world.

The Metropolitan Campus is authorized to offer this Program.

## REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN DESIGN

General Education Requirements	48 credits
Major Requirements	45 credits
Prescribed Distributive Requirements	21 credits
Elective Courses	<u>9 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.”

### Major Requirements 45 credits

DSGN	1000	Elements and Principles of Artistic Language	3
DSGN	1040	Drawing as a Foundation for Design	3
DSGN	2001	Two-Dimensional Design I	3
DSGN	2002	Two-Dimensional Design II	3
DSGN	2021	Tridimensional Design I	3
DSGN	2022	Tridimensional Design II	3
DSGN	3010	Basic Digital Design	3
DSGN	3030	Chronology of Design	3
DSGN	3400	Entrepreneurial Development in Design	3
DSGN	3500	Concept and Creativity	3
DSGN	3510	Specialized Workshop	4
DSGN	4050	Development of Portfolio	4
DSGN	4910	Internship in Design	4
ENTR	2200	Fundamentals of Entrepreneurship	3

### Prescribed Distributive Requirements – 21 credits

Select 21 credits from the following

ARTE	2403	History of Art	3
ARTE	3403	History of Modern and Contemporary Art	3
DSGN	3000	Surface Design, Techniques and Materials	3
DSGN	3110	Applied Tridimensional Design, Techniques and Materials	3
DSGN	3200	Principle of the Functional Materials	3
DSGN	3220	Intermediate Digital Design	3
DSGN	3340	Structural Design, Techniques and Cuts	3
DSGN	3970	Special Topics in Design	3
DSGN	4010	Design and Contemporary Cultures	3

## Design and Development of Video-Games (B.S.)

### Graduation Requirements

In addition to complying with the graduation requirements of this Catalog, students must have approved the courses of the major with a minimum grade of C and the course GAME 4100 Project: Design, Development and Publication of a Video Game with a minimum grade of B.

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

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN DESIGN AND DEVELOPMENT OF VIDEO-GAMES

General Education Requirements	48 credits
Major Requirements	65 credits
Prescribed Distributive Requirements	9 credits
Elective Courses	<u>6</u> credits
Total	128

### General Education Requirements - 48 credits

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

### Major Requirements - 65 credits

COMP	2110	Introduction to Computer Science	3
COMP	2120	Programming Logic	3
COMP	2300	Visual Programming	3
COMP	2315	Structured Programming	3
COMP	2400	Object 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 Video Games	4
GAME	1100	Design of Video Games	3
GAME	3101	Video Game Programming I	3
GAME	3102	Video Game Programming II	3
GAME	3103	Video Game Programming III	3
GAME	3201	Graphics of Video Games I	3
GAME	3202	Graphics of Video Games II	3
GAME	3203	Graphics of Video Games III	3
GAME	4100	Project: Design, Development and Publication of a Video Game	3

### Prescribed Distributive Requirements 9 credits

Select 9 credits from the following courses

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

## Digital Graphic Design and Multimedia (B.S.)

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.

The Fajardo Campus is 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</u> credits
<b>Total</b>	<b>123</b>

**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-Science, Technology and Environment in the Scientific and Technological Context category, and course GEHS 3030- Human Formation in Contemporary Society 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 (B.A. and Certificate)**

The Teacher Education Program constitutes an answer to the needs and aspirations of a society in constant change and to the requirements for certification of the Puerto Rico Department of Education. Taking as a basis Vision 2012, the mission and goals of Inter American University of Puerto Rico, the Institution’s concept of an educated person and the professional standards that characterize the teaching professional, the Teacher Education Program provides a framework of integrated educational experiences. The Program is directed toward the professional formation of a teacher of excellent quality, that is, one who can contribute in an effective manner to

produce the changes deemed desirable in students, knowledgeable about the problems confronting education in Puerto Rico and capable of collaborating in the process of change to improve the quality of both the teacher's life and that of others. The Program, therefore, seeks to achieve a greater integration of its components: professional courses, major courses and general education courses.

Teacher preparation emphasizes the development of those skills and attitudes that allow for the formation of a critical, flexible and creative mind that by using educational theories as the starting point is capable of identifying and posing problems, of carrying out research to find solutions and proposing adequate answers which can be verified through experimentation.

The new vision of teacher preparation implies a program of studies that provides a great number of related experiences that provide for the construction of pedagogical knowledge and content which will develop the future teacher. These experiences are characterized by continuous reflection, practice in real settings, research, collaboration, the relevance of contents, the pedagogical model and the search for and use of tools that permit the solution of problems inherent in the teaching learning processes in different contexts. In this Program of studies the general education, major, and core course components will be integrated.

This vision may be translated into the following goals of the Teacher Education Program as reflected in the graduates who are expected to:

1. Be committed to the professionalization of their chosen field and help dignify the teaching profession with their performance.
2. Use critical reflection as a tool in pedagogical practice.
3. Recognize and use the classroom as a laboratory of human experiences that will increase and enrich the teaching-learning endeavor.
4. Utilize research as a resource for enriching and expanding knowledge and improving pedagogical practice.
5. Perform a pedagogical practice founded on the mastery of knowledge.
6. Be a leader in promoting change and innovation.
7. Conceive of education as a human process.
8. Understand that formal and informal education contribute to the development of the humanistic and scientific culture of society.
9. Be aware of the need for collaborative work as an essential component of their pedagogical practice.
10. Conceive of the oral and written language in their vernacular and second language as essential instruments for the teaching learning process.
11. Be aware of their ethical and legal responsibilities to take positions and to contribute to the solution of problems.
12. Make effective use of technology.
13. Have a clear vision of the diverse ways in which populations are distributed.
14. Be committed to the practice and promotion of a better quality of life.

The University offers study programs for the Bachelor of Arts degree in Early Childhood Education: Preschool Level, Elementary Level (K-3), Elementary Level (4-6), Special Education, Secondary Education, Physical Education, School Health, Musical Education and Art Education. These programs meet the requirements for teacher certification granted by the Puerto Rico Department of Education.

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

- A. The student has been teaching full time for two academic years within the last four years, in a school accredited by the Puerto Rico Department of Education. Has taught in accredited private schools, Head Start Centers, or in the accredited school system of the United States. A written certification issued by the Office of Teacher Certification of the Department of Education is required.
- B. The student pays 50% of the registration cost of the courses Experiences in Educational Environment I and II for the final validation of the credits.
- C. The experience to be credited by the University corresponds to the requirements for the degree that the student hopes to obtain from the Institution.

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

## Accreditation

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

<b>Campus</b>	<b>Accreditation period</b>
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 seek admission to the Teacher Education Program will be classified under the PRE-PEM until they are officially admitted to the PEM major of their interest.

When requesting admission and readmission to the Teacher Education Program, students must meet the following requirements:

1. Have a minimum general point average of 2.50 at the university level.
2. Have earned a minimum of 18 university credits, among these are:
  - a. EDUC 1080 (Field Experience in the Educational Scenario I), or its equivalent, with a minimum grade of B.
  - b. EDUC 2021 (History and Philosophy of Education) or EDUC 2022 (Society and Education) or EDUC 2031 (Developmental Psychology), with a minimum grade of B.
  - c. GESP 1101 (Literature and Communication: Narrative and Essay) and 1102 (Literature and Communication: Poetry and Theater), with a minimum grade of B.
  - d. GEEN 1101 and 1102 (English as a Second Language I and II) or GEEN 1201 and 1202 (Development of English through Reading I and II) or GEEN 2311 (Reading and Writing) and 2312 (Literature and Writing) with a minimum grade of B. Students wishing to enter the Teaching of English as a Second Language at the Elementary Level program or the Teaching of English as a Second Language at the Secondary Level program must have passed the courses GEEN 2311 Reading and Writing and GEEN 2312 Literature and Writing.
3. Submit, in the corresponding academic department, the Application for Admission to the Teacher Education Program.
4. Students will have three (3) semesters or four (4) trimesters to complete the admission requirements. If they do not complete these requirements in the required time, they must choose another field of studies.

### Additional Notes:

1. Students presenting official evidence of having worked under a teacher or assistant teacher contract during a semester or more will be exempt from taking the course EDUC 1080 – Field Experience in the Educational Scenario I.
2. Students in distance learning courses that require visits to schools must make the corresponding arrangements prior to registering in the courses.

## Retention Requirements for the Teacher Education Program

1. To remain in the Teacher Education Program, students must finish the academic year with a minimum general grade index as indicated below:
  - a. 47 credits or less: 2.50

- b. 48-71 credits: 2.75
  - c. 72-95 credits: 2.90
  - d. 96 or more credits: 3.00
2. Student must comply with the institutional norm of credits attempted and approved.
  3. Students that do not meet the required grade point index to remain in the Program will be placed on probation for a period no greater than two academic semesters or three trimesters.
  4. Students that do not reach the required grade point index during the probationary period will be dropped from the Teacher Education Program.
  5. Students dropped from the Program may request admission to or change their major to another field of studies.

**Admission Requirements for the Course Clinical Experiences in the Educational Scenario II (EDUC 4013) or Practice Teaching (Applies to students admitted or readmitted to the Teacher Education Program starting in August of 2009.)**

1. Have passed the Core Course Requirements of the Program, except EDUC 4551 and 4552.
2. Have passed the Major Requirements.
3. Have a minimum grade point average of 3.00.
4. Have a minimum grade point average of 3.00 in the Core Course Requirements, in the Major Requirements and in the Specialization Requirements.
5. Submit the Application for Admission and have the approval of the Practice Teaching Coordinator or Supervisor.

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. Nonresidents of Puerto Rico 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 grade point average of 3.00.
2. Have obtained a minimum grade point average of 3.00 in the core course requirements.
3. Have obtained a minimum grade point average of 3.00 in the major and specialization.
4. Have earned a minimum grade of B in the course of Clinical Experiences II Practice Teaching course).

**Graduation Grade Point Indexes for Students Admitted or Re-admitted to the Teacher Education Program before August of 2009**

Academic year of Graduation	General Index in Core, Major and Specialization Courses
2009-2011	2.50
2011-2013	2.80
2013-2014 and beyond	3.00

**Teacher Certification of Puerto Rico**

Students interested in obtaining the teacher certification to teach in Puerto Rico, must fulfill the current requirements of the Department of Education of the Commonwealth of Puerto Rico.

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, Alternate Method and Recertification

Student interested in completing a Minor in Education, or in being certified by the Alternate Method or in being recertified must have a minimum general average of 2.50.

## Preschool Level Education

The Aguadilla, Arecibo, Fajardo, Guayama, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Arecibo Campus is authorized to offer this Program on line.

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EARLY CHILDHOOD EDUCATION: PRESCHOOL LEVEL

General Education Requirements	54 credits
Core Course Requirements	41 credits
Major Requirements	28 credits
Elective Courses	<u>3</u> credits
Total	126

### General Education Requirements - 54 credits

Fifty four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

### Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	4050	Curriculum Design	2
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013A	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

### Major Requirements - 28 credits

EDUC	2020	Health, Nutrition and First Aid	3
EDUC	2875	Language Stimulation	3
EDUC	3003	Nature and Needs of Infants and Preschool Age Children with Developmental Deficiencies	3
EDUC	3090	Children's Literature	3
EDUC	3126	Psycho-philosophical Influences in Curriculum Models for Early Childhood Education	4

EDUC	3130	Fine Arts in the Educational Process	3
EDUC	3170	Parents as Educators	3
EDUC	3260	Organization and Administration of Childhood Services	3
EDUC	4110	Children's Play as a Learning Process	3

### Early Childhood Education: Elementary Primary Level (K-3)

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

#### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EARLY CHILDHOOD EDUCATION: PRIMARY LEVEL (K-3)

General Education Requirements	54 credits
Core Course Requirements	41 credits
Major Requirements	29 credits
Elective Courses	<u>3</u> credits
Total	127

#### General Education Requirements - 54 credits

Fifty four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

#### Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	4050	Curriculum Design	2
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013B	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

#### Major Requirements - 29 credits

EDUC	2020	Health, Nutrition and First Aid	3
EDUC	3075	Mathematics Curriculum, Teaching and Assessment in the Primary Grades (K-3)	2
EDUC	3083	Social Studies Curriculum, Teaching and Assessment in the Primary Grades (K-3)	2
EDUC	3090	Children's Literature	3
EDUC	3130	Fine Arts in the Educational Process	3
EDUC	3150	The Kindergarten in the School Program	3
EDUC	3170	Parents as Educators	3

EDUC	3185	English Curriculum, Teaching and Assessment in the Primary Grades (K-3)	2
EDUC	3235	Reading and Writing in the Primary Grades	3
EDUC	3265	Natural Sciences Curriculum, Teaching and Assessment in the Primary Grades (K-3)	2
EDUC	4110	Children's Play as a Learning Process	3

### Early Childhood Education: Elementary Level (4-6)

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

#### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EARLY CHILDHOOD EDUCATION: ELEMENTARY LEVEL (4-6)

General Education Requirements	54 credits
Core Course Requirements	41 credits
Major Requirements	30 credits
Elective Courses	<u>3</u> credits
Total	128

#### General Education Requirements - 54 credits

Fifty four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

#### Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013C	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

#### Major Requirements - 30 credits

EDUC	2020	Health, Nutrition and First Aid	3
EDUC	3076	Mathematics Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3084	Social Studies Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3090	Children's Literature	3
EDUC	3130	Fine Arts in the Educational Process	3
EDUC	3170	Parents as Educators	3
EDUC	3186	English Curriculum, Teaching and Assessment in the Primary Grades 4-6)	3

EDUC	3232	Language Arts Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3266	Natural Sciences Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	4110	Children's Play as a Learning Process	3

## 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</u> credits
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 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

### Core Course Requirements - 37 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013H	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

**Major Requirements - 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 Mental Retardation and Emotional Disturbances	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 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the courses GEHP 3000 and GEMA 1000. Instead they will take the course HPER 3160 or 3310 to meet the requirements of the category. In the Basic Skills in Mathematics category they will take GEMA 1001 and GEMA 1002.

**Core Course Requirements - 37 credits**

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4013G	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

### **Major Requirements - 21 credits**

EDUC	2020	Health, Nutrition and First Aid	3
EDUC	3076	Mathematics Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3084	Social Studies Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3130	Fine Arts in the Educational Process	3
EDUC	3186	English Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3232	Language Arts Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3
EDUC	3266	Natural Sciences Curriculum, Teaching and Assessment in the Primary Grades (4-6)	3

### **Specialization Requirements - 27 credits**

EDUC	2905	Nature and Needs of Students with Mental Retardation and Emotional Disturbances	3
EDUC	2906	Nature and Need of Students with Specific Learning Problems, ADD and ADHD	3
EDUC	3140	Language and Reading	3
EDUC	3270	Education Diagnosis, Evaluation and Assessment for Students with Mild Disabilities	3
EDUC	3290	Classroom Management	3
EDUC	3420	Curricular Content, Diagnosis and Correction of Mathematical Learning Problems	3
EDUC	3440	Curricular Content, Diagnosis and Treatment of Reading and Writing Problems	3
EDUC	3470	Technological Assistance, Curriculum and Materials for Teaching Students with Disabilities	3
EDUC	3570	Strategies, Methods and Techniques for Teaching Students with Disabilities	3

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN VISUAL ARTS: SPECIALIZATION IN ART EDUCATION (see the requirements and the campuses authorized to offer this Program under the Visual Arts Program.)

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EDUCATION IN PHYSICAL EDUCATION AT THE ELEMENTARY LEVEL, SECONDARY LEVEL AND IN ADAPTED PHYSICAL EDUCATION (see the requirements and the campuses authorized to offer this Program under the Health, Physical Education and Recreation Program.)

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EDUCATION IN PHYSICAL EDUCATION IN SCHOOL HEALTH (see the requirements and the campuses authorized to offer this Program under the Health, Physical Education and Recreation Program.)

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE IN GENERAL MUSIC EDUCATION-VOCAL (see the requirements and the campuses authorized to offer this Program under the Music Program.)

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE IN MUSIC EDUCATION-INSTRUMENTAL (see the requirements and the campuses authorized to offer this Program under the Music Program.)

## **Secondary Education**

### **Secondary Education in Biology**

The Bachelor of Arts Program in Secondary Education with a major in the Teaching of Biology rests on the fundamental principles of the development of the human being able to think, to analyze critically and to evaluate the learning processes. This Program has as its standards the foundation, theories and methodologies, relevant to the teaching of chemistry in the classroom. This will permit graduates to apply in the classroom the content (knowledge, skills and attitudes), the methodology (strategies, methods and techniques) and the learning evaluation methods, learned during their study program.

It will use the appropriate curricular structure and will be governed by the standards of excellence applicable to the study of biology.

The Program aims to provide the theoretical and practical base for future biology teachers. This implies that they possess:

Knowledge in:

1. The theory, methodology and application of the curricular structure.
2. The usefulness of the scientific method in understanding natural phenomena in relation to living beings.
3. The fundamental and developing concepts that make up biological sciences.
4. Evaluation and assessment in the classroom.
5. The historical and philosophical frame of education.
6. The different stages of development of the human being and how they affect the capacity to learn.

Skills in:

1. The use of technology and scientific instrumentation for the comprehension, analysis, synthesis and evaluation of natural phenomena.
2. The interpretation and analysis of scientific information.
3. Communication within the scientific frame.
4. The use of the investigation process in the classroom.
5. The design and evaluation of curriculum and how this act in response to the education of a society.
6. The use of technology in the field of the education.

Attitudes for:

1. Strengthening ethical aspects in biology.
2. Promoting respect and appreciation for nature.
3. Promoting favorable changes in society through solutions or alternatives that improve the quality of biology teaching.

The Aguadilla, Arecibo, Barranquitas, Fajardo, Metropolitan, Ponce 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</u> credits
Total	143

#### General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. They will take the course GEST 3030 in the Scientific and Technological Context category. Students will take the course GEMA 1200 in the Basic Skills in Mathematics category.

#### Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2

EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013O	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

### Major Requirements - 48 credits

BIOL	1101, 1102	Modern Biology I, II	6
BIOL	1103, 2013	Skills Laboratory I, II	2
BIOL	2103	Zoology	3
BIOL	2104	General Botany	3
BIOL	2251	Genetics	3
BIOL	3106	Anatomy and Human Physiology	4
BIOL	3503	General Ecology	3
EDUC	3863	Instructional Theory, Methodology, and Technological Resources in the Teaching of Biology	3
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
MATH	1500	Precalculus	5
PHYS	3001, 3002	General Physics I, II	8

If, in addition to their certification as Biology teachers, students wish to be certified as Junior High School Science teachers, they must take course EDUC 3864 (Instructional Theories, Methodology, and Technological Resources in the Teaching of Science in the Junior High School) in addition the 42 credits of the core requirements,

### Secondary Education in Chemistry

The Bachelor of Arts Program in Secondary Education with a major in the Teaching of Chemistry rests on the fundamental principles of the development of the human being able to think, to analyze critically and to evaluate the learning processes. This Program has as its standards the foundation, theories and methodologies, relevant to the teaching of chemistry in the classroom. This will permit graduates to apply in the classroom the content (knowledge, skills and attitudes), the methodology (strategies, methods and techniques) and the learning evaluation methods, learned during their study program.

It will use the appropriate curricular structure and will be governed by the standards of excellence applicable to the study of chemistry.

The Program aims to provide the theoretical and practical base for future chemistry teachers. This implies that they possess:

#### Knowledge in:

1. The theory, methodology and application of the curricular structure.
2. The essential principles, laws and theories of chemistry.
3. The most common instruments used in chemical processes.
4. The usefulness of the scientific method in understanding natural phenomena in relation to living beings.
5. Evaluation and assessment in the classroom.
6. The historical and philosophical frame of education.
7. The different stages of development of the human being and how they affect the capacity to learn.

#### Skills in:

1. The use of technology and scientific instrumentation for the comprehension, analysis, synthesis and evaluation of chemical processes.
2. The interpretation and analysis of scientific information.

3. Communication within the scientific frame.
4. The use of the investigation process in the classroom.
5. The design and evaluation of curriculum and how this act in response to the education of a society.
6. The use of technology in the field of the education.

Attitudes for:

1. Demonstrating ethical principles in the application of chemical concepts and processes.
2. Promoting favorable changes in society through solutions or alternatives that improve the quality of chemistry teaching.
3. Recognizing the importance of scientific knowledge and technology to improve the quality of life.

The San Germán Campus is authorized to offer this Program.

#### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SECONDARY EDUCATION IN CHEMISTRY

General Education Requirements	51 credits
Core Course Requirements	44 credits
Major Requirements	49 credits
Elective Courses	<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 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. They will take the course GEST 3030 in the Scientific and Technological Context category. Students will take the course GEMA 1200 in the Basic Skills in Mathematics category.

#### Core Course Requirements - 44 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	3566	Methods and Techniques in the Teaching of Chemistry	3
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013P	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

#### Major Requirements - 49 credits

CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221	Organic Chemistry I	4
CHEM	2222	Organic Chemistry II	4
CHEM	2223	Development and Application of Didactic Materials in Chemistry	3

CHEM	3320	Analytical Chemistry	4
BIOL	1101	Modern Biology I	3
BIOL	1102	Modern Biology II	3
BIOL	1103	Skills Laboratory I	1
BIOL	2013	Skills Laboratory II	1
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

## Secondary Education in History

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

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SECONDARY EDUCATION IN HISTORY

General Education Requirements	48 credits
Core Course Requirements	38 credits
Major Requirements	39 credits
Elective Courses	<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 and 3040 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. They are exempt from taking the course GEHS 2010. Courses GEST 2020 and 3030 are required in the Scientific and Technological Context category.

#### Core Course Requirements - 38 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013T	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1

#### Major Requirements - 39 credits

HIST	1020	The Ancient World	3
HIST	1030	The Medieval World	3
HIST	1040	The Modern World	3
HIST	1050	The Contemporary World	3

HIST	2030	Colonial Latin America	
		or	
HIST	2035	Latin America since Independence	3
HIST	2050, 2055	Puerto Rico I, II	6
HIST	3050, 3055	Unites States I, II	6
HIST	4020	Historiography	
		or	
HIST	4210	Historical Research	3
EDUC	3565	Methods and Techniques in Teaching History	3

One of the following courses:

HIST	2040	The Caribbean since the 17th Century	3
HIST	3040	Sub-Saharan Africa	3
HIST	3060	Asia	3
HIST	3070	Russia until the 19th Century	3
HIST	3075	Russia during the 19th and 20th Centuries	3

One of the following courses:

GEOG	1144	Introduction to Cultural Geography	3
GEOG	3274	Economic Geography	3
GEOG	4224	Political Geography	3

## Secondary Education in Mathematics

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

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SECONDARY EDUCATION IN MATHEMATICS

General Education Requirements	51 credits
Core Course Requirements	41 credits
Major Requirements	35 credits
Elective Courses	<u>6</u> credits
Total	130

#### General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students will take the course GEMA 1200 in the Basic Skills in Mathematics category.

#### Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2

EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013Q	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

### Major Requirements - 35 credits

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 Science for the Junior High School

The Metropolitan Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SCIENCE FOR THE JUNIOR HIGH SCHOOL

General Education Requirements	51 credits
Core Course Requirements	41 credits
Major Requirements	36 credits
Elective Courses	<u>3</u> credits
Total	131

### General Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. They will take the course GEST 3030 in the Scientific and Technological Context category.

### Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2

EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013N	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

### Major Requirements - 36 credits

BIOL	1101, 1102	Modern Biology I, II	6
BIOL	1103, 2013	Skills Laboratory I, II	2
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
EDUC	3864	Theories of Instruction, Technological Methodology and Resources in the Junior High School	3
PHYS	3001, 3002	General Physics I, II	8
MATH	1500	Precalculus	5
GEOG	2034	Introduction to Physical Geography	4

### Secondary Education in Social Studies

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

#### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SECONDARY EDUCATION IN SOCIAL STUDIES

General Education Requirements	51 credits
Core Course Requirements	38 credits
Major Requirements	36 credits
Elective Courses	<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 3030, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. They are exempt from taking the course GEHS 2010. Courses GEST 2020 and 3030 are required in the Scientific and Technological Context category.

### Core Course Requirements - 38 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2

EDUC	4013S	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1

### Major Requirements - 36 credits

ANTH	1040	Introduction to Anthropology	3
EDUC	3564	Methods and Techniques in Teaching Social Studies	3
GEOG	1144	Introduction to Cultural Geography	3
GEOG	4494	Geography of Puerto Rico	3
HIST	2050	History of Puerto Rico I	3
HIST	2055	History of Puerto Rico II	3
HIST	3050	History of the United States I	3
HIST	3055	History of the United States II	3
POLS	1011	Introduction to Political Science	3
POLS	3080	Political Economics	3
SOCI	2030	Introduction to Sociology	3
SOCI	3753	Social Problems of Puerto Rico	3

### Secondary Education in Spanish

The Aguadilla, Arecibo, Barranquitas, Metropolitan, and San Germán campuses are authorized to offer this Program. The Arecibo Campus is also authorized to offer this Program through distance 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 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

### Core Course Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013R	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1

EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

### Major Requirements - 37 credits

Students of the Bachelor of Arts Degree in Secondary Education in Spanish must pass courses SPAN 2541 and SPAN 2542 with a minimum grade of B. The remaining major courses must be passed with a minimum grade of C.

SPAN	2541, 2542	Advanced Grammar I, II	6
SPAN	3000	Linguistics Applied to Teaching	3
SPAN	3020	Writing Workshop	3
SPAN	3021, 3022	Spanish Literature I, II	6
SPAN	3071, 3072	Spanish-American Literature I, II	6
SPAN	3211, 3212	Puerto Rican Literature I, II	6
SPAN	4010	Reading Workshop	3
EDUC	4035	Methodology in Teaching the Maternal Language and Literature	4

## Special Education

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

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SPECIAL EDUCATION

General Education Requirements	54 credits
Core Course Requirements	37 credits
Major Requirements	27 credits
Elective Courses	<u>3</u> credits
Total	121

### General Education Requirements - 54 credits

Fifty-four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

### Core Course Requirements - 37 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013V	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

### Major Requirements - 27 credits

EDUC	2905	Nature and Needs of Students with Mental Retardation and Emotional Disturbances	3
EDUC	2906	Nature and Need of Students with Specific Learning Problems, ADD and ADHD	3
EDUC	3140	Language and Reading	3
EDUC	3270	Educational Diagnosis, Evaluation and Assessment for Students with Disabilities	3
EDUC	3290	Classroom Management	3
EDUC	3420	Curricular Content, Diagnosis and Correction of Learning Problems in Mathematics	3
EDUC	3440	Curricular Content, Diagnosis and Correction of Learning Problems in Reading and Writing	3
EDUC	3470	Technological Assistance, Curriculum and Materials for Teaching Students with Disabilities	3
EDUC	3570	Strategies, Methods and Techniques for Teaching Students with Disabilities	3

Students in the Bachelor of Arts Program in Special Education are exempt from taking the courses EDUC 4050 and 3013.

### Special Education in Autism

The Ponce Campus is authorized to offer this Program.

#### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SPECIAL EDUCATION IN AUTISM

General Education Requirements	54 credits
Core Course Requirements	37 credits
Special Education Requirements	27 credits
Major Requirements	18 credits
Elective Courses	<u>3</u> credits
Total	139

### General Education Requirements - 54 credits

Fifty-four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

### Core Course Requirements - 37 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013U	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Students of the Bachelor of Arts in Special Education are exempt from taking the core courses EDUC 4050 and 3013.

### Special Education Requirements - 27 credits

EDUC	2905	Nature and Needs of the Students with Mental Retardation and Emotional Disturbances	3
EDUC	2906	Nature and Needs of Students with Specific Learning Problems, ADD and ADHD	3
EDUC	3140	Language and Reading	3
EDUC	3270	Educational Diagnosis, Evaluation, and Assessment for Students with Disabilities	3
EDUC	3290	Classroom Management	3
EDUC	3420	Curricular Content, Diagnosis and Treatment of Learning Problems in Mathematics	3
EDUC	3440	Curricular Content, Diagnosis and Treatment of Reading and Writing Problems	3
EDUC	3470	Technological Assistance, Curriculum and Materials for Teaching Students with Disabilities	3
EDUC	3570	Strategies, Methods and Techniques for Teaching Students with Disabilities	3

### Major Requirements - 18 credits

EDUC	2053	Nature and Needs of Students with Autism	3
EDUC	2055	Psycho-social Aspects of Students with Autism	3
EDUC	2057	Communication Problems and Methods for Students with Autism	3
EDUC	3053	Diagnosis, Evaluation and Assessment Techniques for Students with Autism	3
EDUC	3054	Curriculum and Teaching Methods for Students with Autism	3
EDUC	4010	Managing Behavior of Students with Autism	3

Students in the Bachelor of Arts Program in Special Education are exempt from taking the courses EDUC 4050 and 3013.

## Special Education in the Deaf and Partially Deaf

The Ponce Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SPECIAL EDUCATION IN THE DEAF AND PARTIALLY DEAF

General Education Requirements	54 credits
Core Course Requirements	37 credits
Special Education Requirements	27 credits
Major Requirements	18 credits
Elective Courses	<u>3</u> credits
Total	139

### General Education Requirements - 54 credits

Fifty-four (54) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category. Students of this Program are exempt from taking the course GEMA 1000 from the Basic Skills in Mathematics category. Instead they will take GEMA 1001 and GEMA 1002.

### Core Course Requirements - 37 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3

EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013W	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

Students of the Bachelor of Arts in Special Education are exempt from taking the core courses EDUC 4050 and 3013.

### Special Education Requirements - 27 credits

EDUC	2905	Nature and Needs of the Students with Mental Retardation and Emotional Disturbances	3
EDUC	2906	Nature and Needs of Students with Specific Learning Problems, ADD and ADHD	3
EDUC	3140	Language and Reading	3
EDUC	3270	Educational Diagnosis, Evaluation, and Assessment for Students with Disabilities	3
EDUC	3290	Classroom Management	3
EDUC	3420	Curricular Content, Diagnosis and Treatment of Learning Problems in Mathematics	3
EDUC	3440	Curricular Content, Diagnosis and Treatment of Reading and Writing Problems	3
EDUC	3470	Technological Assistance, Curriculum and Materials for Teaching Students with Disabilities	3
EDUC	3570	Strategies, Methods and Techniques for Teaching Students with Disabilities	3

### Major Requirements - 18 credits

EDUC	2907	Nature and Needs of the Deaf and Partially Deaf Student	3
EDUC	2909	Sign Language in the Context of the Deaf and Partially Deaf Culture	3
EDUC	2911	Curriculum, Methodology and Materials for Teaching the Deaf and Partially Deaf Student	3
EDUC	3581	Methods of Teaching Reading and the 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, Guayama, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN THE TEACHING OF ENGLISH AS A SECOND LANGUAGE AT THE ELEMENTARY LEVEL

General Education Requirements	51 credits
Core Course Requirements	39 credits
Major Requirements	28 credits
Elective Courses	<u>3</u> credits
Total	121

## Education Requirements - 51 credits

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students are required to have taken the courses GEEN 2311, 2312 and 2313. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

## Core Course Requirements - 39 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013E	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

## Major Requirements - 28 credits

ENGL	3007	Advanced 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, Guayama, Metropolitan, Ponce and San Germán campuses are authorized to offer this Program. The Arecibo Campus is also authorized to offer this Program through distance learning.

**REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN THE TEACHING OF ENGLISH AS A SECOND LANGUAGE AT THE SECONDARY LEVEL**

General Education Requirements	51 credits
Core Course Requirements	39 credits
Major Requirements	34 credits
Elective Courses	<u>3 credits</u>
<b>Total</b>	<b>127</b>

**General Education Requirements - 51 credits**

Fifty-one (51) credits are required in General Education for this Program. In addition to GEHS 2010, students will take GEHS 3020, 4020 and 4030 in the Historic and Social Context category. Students are required to have taken the courses GEEN 2311, 2312 and 2313. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

**Core Course Requirements - 39 credits**

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013D	Clinical Experiences in the Educational Scenario II	4
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

**Major Requirements – 34 credits**

ENGL	3007	Advanced 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

REQUIREMENTS FOR THE MINOR IN RELIGION AND EDUCATION - 26 credits

RELI	2013	Living Religion	3
RELI	3013	The Old Testament	3
RELI	3024	The New Testament	3
RELI	3326	History of Christianity	3
RELI	4100	Christian Education	3
RELI	4300	Christian Education Curriculum	3
RELI	4353	Philosophy of Religion	3
EDUC	2031	Developmental Psychology	3
EDUC	3013	Teaching Strategies	2

### Minor in School Social Work

The Arecibo Campus is 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

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.

## Electronics Technology (A.S. and B.S.)

### Associate Program

The program for the Associate of Science Degree in Electronic Technology is designed to offer students the skills and knowledge necessary to compete 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 ELECTRONICS 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
GEMA	1200	Fundamentals of Algebra	3
GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

### Major Requirements - 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 Electronics Technology is designed to develop student knowledge and skills in the electronics field so that when they complete the program they will be competent professionals in one of the fields of greatest demand in government and industry. The Program also aims to prepare students for graduate studies.

To be officially admitted to this Program the students must meet the following requirements:

1. Have a general grade point average of at least 2.50 in high school or its equivalent.
2. Have at least 550 in the mathematics achievement part of the College Board examination.

Note: Students who do not comply with the above-mentioned requirements may be admitted to the Program if, in their first year of college studies, they have a grade point average of at least 2.50.

The Aguadilla and San Germán campuses are authorized to offer this Program.

#### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN ELECTRONICS TECHNOLOGY

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

#### General Education Requirements - 48 credits

Forty-eight (48) credits are required as explained in the section “General Education Requirements for Bachelors’ Degrees.” 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	Electric Circuits Laboratory I	1
ELEC	2332	Electric 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	of 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 Electronics

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

The San Germán Campus is authorized to offer this minor.

### Requirements for the Minor in Electronics - 21 credits

MATH	1500	Pre Calculus	5
ELEC	2131	Logic Circuits I	4
ELEC	2341	Electric Circuits I	4
ELEC	2342	Electric Circuits II	4
ELEC	3181	Electronic Circuits I	4

## Engineering

Four engineering programs are offered: Computer Engineering, Electrical Engineering, Industrial Engineering and Mechanical Engineering.

### General Admission Requirements

To be admitted to one of the Engineering programs applicants must meet have an admission index of 1,000 points or above and have graduated from high school or its equivalent with a minimum average of 2.50.

Students who do not initially meet the minimum admission requirements may be admitted to these programs, if prior to taking their first course of their major, they have a minimum grade point index of 2.00, have obtained at least a C in the course Precalculus (MATH 1500) or equivalent, and have been recommended by the appropriate engineering department director.

Transfer students, either from within the University system or from other accredited institutions and students wishing to change their major may be considered for admission to these engineering programs once they have passed Precalculus (MATH 1500) or its equivalent with a minimum grade of C and are recommended by the appropriate department director.

Student admitted to the engineering programs will graduate according to the program and the regulations of the General Catalog in force when they were admitted to the program or as any subsequent catalog.

Engineering students with 500 points or more in the Mathematics test of College Board's Evaluation and Admissions Tests (PEAU in Spanish) are exempt from taking the course GEMA 1200 - Fundamentals of Algebra.

Students will take the intermediate level Communication Skills courses in English (GEEN 1201, 1202 and 1203) or the advanced level (GEEN 2311, 2312 and 2313).

## Pre-engineering

The Pre-engineering program allows students to begin their engineering studies at the different Campuses of Inter American University. The Program emphasizes preparation in mathematics, sciences and languages. Students who successfully complete the program may register in the School of Engineering of the Bayamón Campus.

For admission to the Pre-engineering program, students must have an admission index of 1,000 points or more in the College Board tests and have graduated from high school or its 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	30 credits
Engineering and Related Course Requirements	<u>25 credits</u>
<b>Total</b>	<b>55</b>

#### General Education Requirements - 30 credits

Nine credits in Spanish and nine in English are required.

GESP	1101	Literature and Communication: Narrative and Essay	3
GESP	1102	Literature and Communication: Poetry and Theater	3
GESP	2203	World View through Literature	3
GEEN	1201	Development of English through Reading I	3
GEEN	1202	Development of English through Reading II	3
GEEN	1203	Development of English through Writing (PEAU 500-599 in English)	3
		or	
GEEN	2311	Reading and Writing	3
GEEN	2312	Literature and Writing	3
GEEN	2213	Reading and Research (PEAU 600 or better in English)	3
GEIC	1010	Information and Computer Literacy	3
GEMA	1200	Fundamentals of Algebra	3

Two courses from the following are required:

GECF	1010	Introduction to the Christian Faith	3
GEHS	2010	Historical Process of Puerto Rico	3
GEST	2020	Science, Technology and Environment	3

#### Engineering and Related Course Requirements - 25 credits

CHEM	2115	General Chemistry for Engineers	4
ENGR	1100	Introduction to Engineering	3
ENGR	2120	Introduction to Computer Engineering	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4

### Computer Engineering (B.S.)

The Bachelor of Science in Computer Engineering Program includes the design of computers and systems based on computers. It focuses in the study of software and hardware and the communication and interaction between them. The program includes the study and the application of theory, principles and practice of electrical engineering and the mathematics to solve problems involving the design of computers, devices and programs that interact with users and with each other.

## Retention Requirements

1. Meet all Academic Progress Requirements established in the General Catalog.
2. Pass all major and prescribed distributive courses with a minimum grade of C.
3. Have passed all prerequisite courses before taking continuation courses.

The Bayamón Campus is authorized to offer this Program.

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN COMPUTER ENGINEERING

General Education Requirements	39 credits
Core Course Requirements	59 credits
Major Requirements	57 credits
Prescribed Distributive Requirements	12 credits
Elective Courses	<u>3 credits</u>
Total	170

### General Education Requirements - 39 credits

Thirty-nine (39) credits are required as explained in the Engineering Program. Students are exempt from taking GEMA 1200 in the Mathematics category and will take only the course GEPE 4040 in the Philosophic and Esthetic Thought category. In the Historic and Social Context category they will take two courses, one of which will be GEHS 2010.

### Core Course Requirements - 59 credits

ENGR	1100	Introduction to Engineering	3
ENGR	2220	Computerized Engineering Graphics	3
ENGR	3200	Probability and Statistics	3
ENGR	3300	Engineering Economics	3
ENGR	3340	Foundations of Statics and Dynamics	3
ENGR	3343	Thermal and Fluid Sciences	4
ENGR	3350	Material Sciences	3
ENGR	3500	Professional Ethics for Engineers	2
CHEM	2115	General Chemistry for Engineers	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3250	Calculus III	3
MATH	3350	Linear Algebra	3
MATH	3400	Differential Equations	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

### Major Requirements - 57 credits

COEN	2210	Introduction to Programming	4
COEN	2220	Advanced Programming	4
COEN	2310	Discrete Mathematics for Computer Engineering	3
COEN	3410	Software Design and Construction	3
COEN	3510	Operating Systems	4
COEN	4510	Computer Architecture	4
ELEN	3301	Electric Circuits I	4
ELEN	3302	Electric Circuits II	4
ELEN	3311	Electronics I	4
ELEN	3320	Logic Circuit	4

ELEN	3420	Signals and Systems	4
ELEN	4010	Microcontrollers	4
ELEN	4410	Digital Systems Design	4
ELEN	4610	Analog Communication	4
ELEN	4811	Project Design in Electrical Engineering and Computers I	2
ELEN	4812	Project Design in Electrical Engineering and Computers II	1

### **Prescribed Distributive Requirements - 12 credits**

Students will select 12 credits from the following courses:

COEN	4412	Design of Interfaces of User and Prototypes	4
COEN	4413	Design of Expert Systems	4
COEN	4420	Computerized Information Systems Design	4
COEN	4530	Design and Construction of Compilers	4
COEN	4535	Integrated Computer System	4
COEN	4540	Parallel Computation Design	4
COEN	4910	Practice in Computer Engineering	4
ELEN	3312	Electronics II	4
ELEN	4617	Communication Data Networks	4

## **Electrical Engineering (B.S.)**

The Bachelor of Science Degree Program in Electrical Engineering includes the study and design of production systems and the transmission and measurement of electrical signals. It emphasizes the analysis, design, implementation and testing of these systems. In the curriculum there are four submajors: 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](http://www.abet.org)).

### **Description of Submajors**

1. Communication Systems  
The communications systems are electrical systems that generate, transmit and distribute information.
2. Control Systems  
The control systems consist of systems and subsystems that, assembled to each other, control a certain plant or process.
3. Electronic Systems  
The purpose of the electronic systems is to extract, store, transport, or process the information in a signal.
4. Power and Energy Systems  
The power systems work with the generation, transmission and distribution of electrical energy. In addition, they are responsible for the generating and transforming devices connected to the electrical networks, such as generators and transformers.

These study programs aim to enable the student to practice electrical engineering at a professional level.

### **Academic Progress Requirements**

1. Meet all Academic Progress Requirements established in the General Catalog.
2. Pass all major and prescribed distributive courses with a minimum grade of C.
3. Have passed all prerequisite courses before taking continuation courses.

The Bayamón Campus is authorized to offer this Program.

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN ELECTRICAL ENGINEERING

General Education Requirements	39 credits
Core Course Requirements	60 credits
Major Requirements	57 credits
Submajor Requirements	12 credits
Elective courses	<u>3</u> credits
Total	171

### General Education Requirements - 39 credits

Thirty-nine (39) credits are required as explained in the Engineering Program. Students are exempt from taking GEMA 1200 in the Mathematics category and will take only the course GEPE 4040 in the Philosophic and Esthetic Thought category if they have obtained at least 550 points in the mathematics achievement test of the Evaluation and Admissions Tests of College Board. In the Historic and Social Context category they will take two courses, one of which will be GEHS 2010.

### Core Course Requirements - 60 credits

ENGR	1100	Introduction to Engineering	3
ENGR	2120	Introduction to Engineering Computing	4
ENGR	2220	Computerized Engineering Graphics	3
ENGR	3200	Probability and Statistics	3
ENGR	3300	Engineering Economics	3
ENGR	3340	Foundations of Statics and Dynamics	3
ENGR	3343	Thermal and Fluid Sciences	4
ENGR	3350	Material Sciences	3
ENGR	3500	Professional Ethics for Engineers	2
CHEM	2115	General Chemistry for Engineers	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3250	Calculus III	3
MATH	3400	Differential Equations	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

### Major Requirements - 57 credits

ELEN	3301	Electric Circuits I	4
ELEN	3302	Electric Circuits II	4
ELEN	3311	Electronics I	4
ELEN	3312	Electronics II	4
ELEN	3320	Logic Circuits	4
ELEN	3351	Electromagnetism I	3
ELEN	3352	Electromagnetism II	3
ELEN	3420	Signals and Systems	4
ELEN	4010	Microcontrollers	4
ELEN	4327	Measurements and Instrumentation	4
ELEN	4351	Power Systems Analysis I	4
ELEN	4353	Electric Machines and Drives	4
ELEN	4509	Control Systems	4
ELEN	4610	Analog Communication	4
ELEN	4811	Project Design in Electrical Engineering and Computers I	2
ELEN	4812	Project Design in Electrical Engineering and Computers II	1

### **Submajor Requirements - 12 credits**

Students are required to take at least one of the following submajors:

#### **Communication Systems (Electrical Engineering)**

##### **Communication Systems – 12 credits**

ELEN	4611	Microwave and Radio Frequency Engineering I	4
ELEN	4612	Microwave and Radio Frequency Engineering II	4
ELEN	4613	Optical Communications	4
ELEN	4614	Digital Communication	4
ELEN	4615	Digital Signal Processing	4
ELEN	4616	Antenna Design	4
ELEN	4617	Data Communication Networks	4
ELEN	4618	Wireless and Cellular Communication	4
ELEN	4910	Electrical Engineering Practical Experience	4

#### **Control Systems (Electrical Engineering)**

##### **Control Systems - 12 credits**

ELEN	4513	Digital Control Systems	4
ELEN	4514	Robotics	4
ELEN	4515	Process Control	4
ELEN	4516	Computer Aided Control System Design	4
ELEN	4917	Neural Networks Applied to Control Systems	4
ELEN	4518	Automation	4
ELEN	4910	Electrical Engineering Practical Experience	4

#### **Electronic Systems (Electrical Engineering)**

##### **Electronic Systems - 12 credits**

ELEN	4410	Digital Systems Design	4
ELEN	4413	Analog Filter Design	4
ELEN	4414	Electronic Design	4
ELEN	4415	Power Electronics	4
ELEN	4416	Design of Microprocessor Based Systems	4
ELEN	4910	Electrical Engineering Practical Experience	4

#### **Power and Energy Systems (Electrical Engineering)**

##### **Power and Energy Systems - 12 credits**

ELEN	4352	Power Systems Analysis II	4
ELEN	4355	Electrical Systems Design for Buildings	4
ELEN	4356	Industrial Power Systems Design	4
ELEN	4358	Distributed Generation	4
ELEN	4415	Power Electronics	4
ELEN	4910	Electrical Engineering Practical Experience	4

## Minor in Power and Energy Systems Engineering

### Requirements of the Minor in Power and Energy Systems Engineering - 19 credits

ELEN	3302	Electrical Circuits II	4
ELEN	4351	Power Systems Analysis I	4
ELEN	4353	Electric Machine and Drives	4
ELEN	4355	Electrical Systems Design for Buildings	4
MECN	4240	Applied Solar Energy	3

## Industrial Engineering (B.S.)

The Bachelor of Science Degree in Industrial Engineering includes the study of systems composed of people, materials and equipment. Emphasis is given to the design, improvement and installation of these systems with the purpose of increasing productivity, profit and effectiveness. This Program aims to prepare students to practice professional engineering. This Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)" ([www.abet.org](http://www.abet.org)).

### Retention Requirements

1. Meet all Academic Progress Requirements established in the General Catalog.
2. Pass all major and prescribed distributive courses with a minimum grade of C.
3. Have passed all prerequisite courses before taking continuation courses.

The Bayamón Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN INDUSTRIAL ENGINEERING

General Education Requirements	39 credits
Core Course Requirements	64 credits
Major Requirements	51 credits
Prescribed Distributive Requirements	12 credits
Electives Courses	<u>3</u> credits
Total	169

### General Education Requirements - 39 credits

Thirty-nine (39) credits are required as explained in the Engineering Program. Students are exempt from taking GEMA 1200 in the Mathematics category and will take only the course GEPE 4040 in the Philosophic and Esthetic Thought category. In the Historic and Social Context category they will take two courses, one of which will be GEHS 2010.

### Core Course Requirements - 64 credits

ENGR	1100	Introduction to Engineering	3
ENGR	2120	Introduction to Engineering Computing	4
ENGR	2220	Computerized Graphics for Engineering	3
ENGR	3200	Probability and Statistics	3
ENGR	3300	Engineering Economics	3
ENGR	3340	Foundations of Statics and Dynamics	3
ENGR	3343	Thermal and Fluid Sciences	4
ENGR	3350	Material Sciences	3
ENGR	3360	Fundamentals of Electronics and Instrumentation	4
ENGR	3500	Professional Ethics for Engineers	2
CHEM	2115	General Chemistry for Engineers	4

MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3400	Differential Equations	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

**One of the following courses is required:**

MATH	3250	Calculus III	3
		or	
MATH	3350	Linear Algebra	3

**Major Requirements - 51 credits**

INEN	3411	Optimization I	3
INEN	3430	Advanced Statistics	3
INEN	3550	Cost Analysis and Control	3
INEN	3650	Systems Simulation	3
INEN	3710	Work Measurement	4
INEN	3970	Topics in Industrial Engineering	1
INEN	4300	Quality Measurement and Analysis	4
INEN	4400	Ergonomics and Design of Workstations	4
INEN	4490	Operations Planning and Control	3
INEN	4550	Facility Layout and Design	3
INEN	4560	Industrial Safety	3
INEN	4590	Project Management	3
INEN	4600	Automated Manufacturing	3
INEN	4700	Design of Experiments	3
INEN	4810	Comprehensive Design Experience	3
INEN	4970	Seminar in Industrial Engineering	1
MECH	4140	Manufacturing Process	4

**Prescribed Distributive Requirements - 12 credits**

Twelve credits from the following courses:

INEN	3412	Optimization II	3
INEN	3500	Sustainable Engineering and Industrial Ecology	3
INEN	4510	Decision-Making under Uncertainty	3
INEN	4520	Systems Reliability	3
INEN	4530	Validation of Pharmaceutical Processes	3
INEN	4545	Supply Chain Management	3
INEN	4570	Stochastic Processes	3
INEN	4580	Resources Programming and Assignment	3
INEN	4611	Lean Six Sigma	3
INEN	4612	Advanced Lean Six Sigma	3
INEN	4915	Practice in Industrial Engineering	3
MECN	4150	Manufacturing Design	3

## Minor in Logistics and Operations Research

Intended for students of the Engineering Programs.

### 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

The Bayamón Campus is authorized to offer this Minor.

## Minor in Quality Systems

Intended for students of the Engineering Programs.

### 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

The Bayamón Campus is authorized to offer this Minor.

## Mechanical Engineering (B.S.)

The Bachelor of Science Program in Mechanical Engineering includes the study of transforming energy into a form that can be controlled and used for the production of goods and services. Emphasis is given to the analysis, design, instruction and control of equipment, instruments and mechanical systems. The Program aims to prepare students to practice mechanical engineering at the professional level. This Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)” ([www.abet.org](http://www.abet.org)).

### Academic Progress Requirements

1. Meet all Academic Progress Requirements established in the General Catalog.
2. Pass all major and prescribed distributive courses with a minimum grade of C.
3. Have passed all prerequisite courses before taking continuation courses.

The Bayamón Campus is authorized to offer this Program.

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MECHANICAL ENGINEERING

General Education Requirements	39 credits
Core Course Requirements	57 credits
Major Requirements	61 credits
Prescribed Distributive Requirements	9 credits
Elective Courses	<u>3</u> credits
Total	169

### General Education Requirements - 39 credits

Thirty-nine (39) credits are required as explained in the Engineering Program. Students are exempt from taking GEMA 1200 in the Mathematics category and will take only the course GEPE 4040 in the Philosophic and Esthetic Thought category. In the Historic and Social Context category they will take two courses, one of which will be GEHS 2010.

### Core Course Requirements - 57 credits

ENGR	1100	Introduction to Engineering	3
ENGR	2120	Introduction to Engineering Computing	4
ENGR	2220	Computerized Engineering Graphics	3
ENGR	3200	Probability and Statistics	3
ENGR	3300	Engineering Economics	3
ENGR	3350	Material Sciences	3
ENGR	3360	Fundamentals of Electronics and Instruments	4
ENGR	3500	Professional Ethics for Engineers	2
CHEM	2115	General Chemistry for Engineers	4
MATH	1500	Precalculus	5
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3250	Calculus III	3
MATH	3400	Differential Equations	3
PHYS	3311	General Physics for Engineers I	4
PHYS	3312	General Physics for Engineers II	4

### Major Requirements - 61 credits

MECN	3005	Vectorial Mechanics for Engineers: Statics	3
MECN	3010	Vectorial Mechanics for Engineers: Dynamics	3
MECN	3110	Fluid Mechanics and Applications	4
MECN	3135	Solid Mechanics	4
MECN	3500	Numerical Methods for Engineers	3
MECN	4100	Mechanical Vibrations	4
MECN	4110	Mechanisms Design	3
MECN	4121	Design of Machine Elements I	3
MECN	4122	Design of Machine Elements II	3
MECN	4140	Manufacturing Processes	4
MECN	4201	Thermodynamics I	3
MECN	4201	Thermodynamics II	3
MECN	4210	Heat Transfer	3
MECN	4300	Engineering Materials	4
MECN	4405	Engineering Analysis Assisted by Computer	3
MECN	4600	Mechanical Measurements and Instrumentation	4
MECN	4610	Automatic Control Systems	3
MECN	4810	Design of Project in Mechanical Engineering	4

### Prescribed Distributive Requirements - 9 credits

Nine additional credits from the following Mechanical Engineering courses are required.

MECN	3140	Power Systems of Fluids	3
MECN	3160	Dynamics of Motor Vehicles	3
MECN	3200	Mechatronics	3
MECN	3350	Efficiency and Airplane Design	3
MECN	3400	Analysis and Design of Aerospace Missions	3
MECN	3600	Gas Turbines and Propulsion Systems	3
MECN	4130	ComputerAided Manufacturing Design	3
MECN	4150	Manufacturing Design	3
MECN	4220	Design of Thermal Systems	3
MECN	4230	Air Conditioning and Refrigeration	3
MECN	4240	Solar Energy Applications	3
MECN	4310	Plastic Engineering	3
MECN	4320	Metal Fatigue	3
MECN	4330	Corrosion Control	3
MECN	4340	Fracture Mechanics	3
MECN	4350	Aerospace Structures and Materials	3
MECN	4620	Dynamics and Control of Aerospace Vehicles	3
MECN	4820	Aerospace Experience	3
MECN	4910	Practice in Mechanical Engineering	3

### Minor in Aerospace Engineering

The Bayamón Campus is authorized to offer this minor.

#### Requirements for the Minor in Aerospace Engineering - 18 credits

MECN	3350	Efficiency and Airplane Design	3
MECN	3400	Analysis and Design of Aerospace Missions	3
MECN	3600	Gas Turbines and Propulsion Systems	3
MECN	4350	Aerospace Structures and Materials	3
MECN	4620	Dynamics and Control of Aerospace Vehicles	3
MECN	4820	Aerospace Experience	3

### English (B.A.)

The 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>
<b>Total</b>	<b>120</b>

#### **General Education Requirements - 48 credits**

Forty-eight (48) credits are required as explained in the section “General Education Requirements for Bachelors’ Degrees.” Students of this Program will take GEEN 2311, 2312 and 2313.

#### **Core Course Requirements - 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

**Note: GEEN 2311, 2312 and 2313 are required for admission to this Program.**

## Minor in Bilingual Oral and Written Communication

The San Germán Campus is authorized to offer this minor.

### REQUIREMENTS FOR THE MINOR IN BILINGUAL ORAL AND WRITTEN COMMUNICATION

Core Courses	18 credits
Prescribed Distributive Requirements	<u>3</u> credits
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 Speakingn	3

#### Prescribed Distributive Requirements - 3 credits

An elective course in English at the 3000 or 4000 level.

## Entrepreneurial and Managerial Development (B.B.A.)

The Entrepreneurial and Managerial Development Program is designed to provide the student with knowledge of the principles that govern the commercial development of companies and their business activities. The Bachelor's in Business Administration Program with a major in Entrepreneurial and Managerial Development seeks to prepare professionals with the skills and knowledge necessary to explore self-employment as a feasible alternative in their professional career or to occupy a position as a business manager.

The student is presented with the concepts, principles and fundamental practices of the different disciplines that include the development and the administration of companies and entrepreneurialism, such as: management, entrepreneurialism, accounting, marketing, economics, finance, quantitative methods and human resources.

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

The admission requirements for the Entrepreneurial and Managerial Practice or for Managerial Simulation are the following:

1. Have the approval of the Department Director or the Practice Coordinator.
2. Maintain a minimum index of 2.25 in the major.
3. Have approved courses ENTR 4400 and ACCT 1162.

The Entrepreneurial and Managerial Practice course can be validated for students who make such a request and have satisfactory fulfilled the established requirements. Such validation will be subject to students' presentation of the following:

1. A formal request to the Director of the Academic Department showing evidence of having held a position as a businessman or manager uninterruptedly for at least three years.
2. A Portfolio showing their professional performance during employment.
3. An interview coordinated by the Director of the Academic Department and to be held with faculty members.

## 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. Demonstrate interest in establishing their own company.

All campuses are authorized to offer this Program.

## REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN ENTREPRENEURIAL AND MANAGERIAL DEVELOPMENT

General Education Requirements	48 credits
Core Course Requirements	41 credits
Major Requirements	30 credits
Elective Courses	<u>3</u> credits
Total	122

### General Education Requirements - 48 credits

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

### Core Course Requirements - 41 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Business	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Business Communication Workshop in Spanish or	
OMSY	3040	Business Communication Workshop 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
CMIS	1200	Programming Algorithms	3
CMIS	2450	Introduction to Internet in the Enterprise	3
MKTG	1210	Introduction to Marketing	3
MKTG	2220	Strategic Marketing Management	3
MKTG	2223	Consumer Behavior	3

### Minor in Entrepreneurship

The Minor in Entrepreneurship offers students, of different academic disciplines, the opportunity to obtain fundamental knowledge in leadership, resource management and development of the team work that complements specialized knowledge. It likewise allows students to become a more overall professional.

The Metropolitan Campus is authorized to offer this minor.

#### REQUIREMENTS FOR THE MINOR IN ENTREPRENEURSHIP - 19 credits

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	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 distance learning.

### REQUIREMENTS FOR THE POST ASSOCIATE DEGREE PROFESSIONAL CERTIFICATE IN ENTREPRENEURIAL DEVELOPMENT

Core Course Requirements 12 credits

#### Core Course Requirements - 12 credits

ENDE	1100	Introduction to Entrepreneurial Development	2
ENDE	3315	Fundamental Procedures in Businesses Establishment	3
ENDE	3316	Businesses Administration	3
ENDE	3320	Electronic Commerce in Entrepreneurial Development	4

## Environmental Sciences (B.S.)

The Bachelor of Science Degree in Environmental Sciences is directed to those persons interested in working as professionals in the area of the environmental science in pollution control in water, soil and air, and in the conservation of land and water natural resources. It aims to provide students with the necessary skills to perform in these two environmental areas in government as well as in private business or industry. The Program offers knowledge on its legal basis and gives training in methodology skills and techniques. Emphasis will be placed on the perception of nature as a system. To receive the Bachelor of Science Degree in Environmental Sciences, students must pass the internship with a minimum grade of C.

The Ponce Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN ENVIRONMENTAL SCIENCES

General Education Requirements	45 credits
Major Requirements	79 credits
Elective Courses	<u>3</u> credits
Total	127

#### General Education Requirements - 45 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 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	2210	Environmental Policies, Laws and Regulations	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	Use of Land and Geographic Information Systems	3
EVSC	4504	Use, Conservation and Quality of Water	3
EVSC	4910	Internship in Environmental Sciences	3
EVSC	4955	Integration Seminar in Environmental Sciences	1
BIOL	1101	Modern Biology I	3
BIOL	1102	Modern Biology II	3
BIOL	1103	Skills Lab I	1
BIOL	2103	Zoology	3
BIOL	2104	Botany	3
BIOL	2153	Biostatistics	3
BIOL	3105	General Microbiology	4
BIOL	3503	General Ecology	3
BIOL	3504	Environmental Health	3
CHEM	1111	General Chemistry I	4
CHEM	2112	General Chemistry II	4
CHEM	3320	Analytical Chemistry	4
MATH	1500	Precalculus	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

## 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	2210	Environmental Policies, Laws and Regulations	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

## Environmental Technology (B.S.)

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>
<b>Total</b>	<b>129</b>

**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 3030 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	Modern Biology I	3
BIOL	1102	Modern Biology II	3
BIOL	1103	Skills Laboratory I	1
BIOL	2103	Zoology	3
BIOL	2104	Botany	3

BIOL	2013	Skills Laboratory II	1
BIOL	2153	Biostatistics	3
BIOL	3105	General Microbiology	4
BIOL	3503	General Ecology	3
CHEM	1111	General Chemistry I	4
CHEM	2112	General Chemistry II	4
CHEM	2221	Organic Chemistry I	4
CHEM	2222	Organic Chemistry II	4
CHEM	3000	Environmental Chemistry	3
CHEM	3320	Analytical Chemistry	4
ELEC	2120	Industrial Safety	2
MATH	1500	Precalculus	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

**Prescribed Distributive Requirements – 6 credits**

Select six (6) credits from following courses:

EVTH	397_	Special Topics	3
BIOL	3504	Environmental Health	3
BIOL	3904	Toxicology	3
BIOL	4433	Industrial Microbiology	3
BIOL	4503	Conservation and Management of Natural Resources	3
BIOL	4953	Research Methods	3
CHEM	3360	Food Chemistry	3
CHEM	3370	Green Chemistry	3
CHEM	4003	Industrial Chemistry	3
CHEM	4220	Biochemistry	4
MATH	2251	Calculus I	5

**Finance (B.B.A.)**

The major in finance is designed to prepare the student to understand, analyze and apply the principles that govern financial activities. The Program trains the student to use instruments of analysis in solving problems and in formulating decisions in the areas of corporate finances, public finances, insurance, real estate, banking and investment. Students must pass the required core and major courses with a minimum grade of C.

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

**REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN FINANCE**

General Education Requirements	48 credits
Core Course Requirements	41 credits
Major Requirements	24 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<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	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Business Communication Workshop in Spanish or	
OMSY	3040	Business Communication Workshop in English	3

### Major Requirements - 24 credits

FINA	3120	Advanced Managerial Finance	3
FINA	3200	Principles of Investment	3
FINA	3300	The Stock Market	3
FINA	3400	Introduction to Risk and Insurance	3
FINA	4100	International Finance	3
FINA	4970	Seminar in Finance	3
MAEC	3235	Money and Banking	3
MAEC	3236	Public Finance and Fiscal Policy	3

### Prescribed Distributive Requirements - 6 credits

Select two of the following courses:

ACCT	3095	Business Ethics	3
BADM	3313	Mercantile Law	3
FINA	3130	Credits and Collections	3
FINA	3150	Personal Finance	3
FINA	3500	Introduction to Real Estate	3
FINA	4910	Internship	3

### Minor in Finance

(Intended for students of Business Administration programs)

The Bayamón Campus is authorized to offer this minor.

### Requirements for the Minor in Finance - 21 credits

FINA	2100	Managerial Finance	3
FINA	3120	Advanced Managerial Finance	3
FINA	3150	Personal Finance	3
FINA	3200	Principles of Investments	3
FINA	3300	The Stock Market	3
FINA	4100	International Finance	3
MAEC	3235	Money and Banking	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

## Forensic Science (B.S.)

The Forensic Science Program presents an interdisciplinary program of studies designed to develop in students the knowledge and fundamental skills necessary for the application of scientific methods used to 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 science and in forensic and criminal justice.

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

### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN FORENSIC SCIENCE

General Education Requirements	45 credits
Major Requirements	27 credits
Required Related Courses	46 credits
Elective Courses	<u>3</u> credits
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	3
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	Modern Biology I	3
BIOL	1103	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 (B.B.A.)

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 distance 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 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</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.

#### 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 Workshop in Spanish or	
OMSY	3040	Business Communication Workshop 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 (A.A.)

The Program of the Associate of Arts degree in Graphic Design aims to prepare the students to work in the communication of ideas and information industry, by means of the use of visual strategies, such as: the printed medium, images for commercial communication and digital presentations. It aspires to prepare graduates to work in the area of the graphic design, either in printing or electronically, advertising design, digital art and design for electronic distribution or Internet.

The San Germán Campus is authorized to offer this Program.

## REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN GRAPHIC DESIGN

General Education Requirements	24 credits
Specialization Requirements	32 credits
Prescribed Distributive Requirements	6 credits
Total	62

### General Education Requirements - 24 credits

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

### Major Requirements - 32 credits

ARTS	1103	Technical Foundations and Drawing Practice	3
ARTS	1200	Introduction to Graphical Design	3
ARTS	1220	Electronic Image	3
ARTS	1420	Typography Design	3
ARTS	1430	Printed Publication Design	3
ARTS	1440	Photo Mechanics	2
ARTS	1540	Digital Photography	2
ARTS	1600	Evolution of Graphic Design	3
ARTS	2110	Graphic Design Applied to Internet	2
ARTS	2200	Digital Graphic Design	3
ARTS	2400	Reproduction and Printing	2
ARTS	2910	Supervised Practice	2
ARTS	2970	Integration Seminar on Graphic Design	1

### Prescribed Distributive Requirements- 6 credits

Students will select six credits from the following courses:

ARTS	2320	Animation for Internet	2
ARTS	2330	Design of Interactive Projects and Multimedia	2
ARTS	2520	Three-dimensional Design	2
ARTS	2530	Video and Digital Sound	2
ARTS	2531	Special Effects for Digital Video	2

## Health, Physical Education and Recreation (B.A.)

The Health, Physical Education and Recreation curriculum offers a varied but solid course of instruction directed toward the physical, mental, emotional, intellectual and social development of its students.

Courses of study are offered for the Bachelor of Arts Degree in the Teaching of Physical Education at the Elementary Level, at the Secondary Level and Adapted Physical Education. The Program also offers the Bachelor of Arts Degree in Sports Technology.

The Sports Technology program is designed to prepare students to recognize the congenital or acquired problems of athletes related to the practice of sports. Prevention and rehabilitation of injuries, the use of safety equipment and the mental, physiological and social factors of persons participating in competitive or recreational sports are studied. Attention is given to the creation and development of scientific training programs.

The Bachelor of Arts Degree in Education in School Health is designed to offer students knowledge in the teaching of health, by providing them a background in theories and educational methods at this level. It also

provides concepts and principles of natural and social sciences and of the humanities. It directs future teachers toward the development of a better quality of life, making them aware of the importance of health and the physical, mental and social balance of human beings in their constant interaction with their surroundings. It provides early immersion in the classroom.

The campuses authorized to offer these programs are:

- a. Bachelor of Arts in Education in Physical Education: Elementary Level - the Aguadilla, Arecibo, Guayama and San Germán campuses.
- b. Bachelor of Arts in Education in Physical Education: Secondary Level - the Aguadilla and San Germán campuses.
- c. Bachelor of Arts in Education in Adapted Physical - the San Germán Campus.
- d. Bachelor of Arts in Sports Technology - The Metropolitan and San Germán campuses.
- e. Bachelor of Arts in Education in School Health - The Metropolitan and San Germán campuses.
- f. Bachelor of Arts in Education in School Health -The Arecibo Campus is authorized to offer this Program through distance 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	36 credits
Major Requirements	12-15 credits
Elective Courses*	3 credits
<b>Total</b>	<u>134-137</u>

**General Education Requirements - 51 credits**

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

**Core Course Requirements in Education - 32 credits**

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4013	Clinical Experiences in the Educational Scenario II 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 - 36 credits**

HPER	2140	Experiences in Movement I	2
HPER	2210	Fundamentals of the Discipline and the Profession of Physical Education, Function of the Teacher in the Discipline and in Society	3
HPER	2220	Experiences in Movement II	2

HPER	2320	First Aid and Personal safety for Children, Youth and Adults	2
HPER	3270	Anatomy and Kinesiology of Movement	3
HPER	3310	Experiences in Movement III	3
HPER	3330	Experiences in Movement IV	3
HPER	3350	Motor Learning and Movement Analysis	3
HPER	3360	Experiences in Movement V	3
HPER	3430	Personal and Collective Health and Safety	3
HPER	4020	Management of Physical Education Programs, Wellness, Health and Sports	3
HPER	4170	Physiology of Human Movement	3
HPER	4370	Teaching of Physical Education for Special Populations	3

### Major Requirements - 12 or 15 credits

Students must choose one of the following majors

### Adapted Physical Education

#### Adapted Physical Education Major Requirements 15 - credits

HPER	3470	Motor Therapy for Children with Disabilities	3
HPER	3475	Theory and Design of Programs for Special Populations	3
HPER	3495	Principles of Therapeutic Recreation	3
HPER	4130	Evaluation, Assessment and Research of Teaching and Learning in Adapted Physical Education	3
EDUC	3885	Educational Theory, Methodology and Technological Resources in the Teaching of Adapted Physical Education	3

### Physical Education: Elementary Level

#### Elementary Level Specialization Requirements - 12 credits

HPER	3160	Educational and Recreational Games in the Curriculum for the Elementary Level	3
HPER	3220	Theory and Design of Physical Education Programs at the Elementary Level K-6	3
HPER	4110	Evaluation, Assessment and Research in Teaching and Learning of Physical Education K-6	3
EDUC	3878	Educational Theory, Methodology and Technological Resources in the Teaching of Physical Education at the Elementary Level	3

### Physical Education: Secondary Level

#### Secondary Level Major Requirements - 12 credits

HPER	3230	Theory and Design of Physical Education Programs 7-12	3
HPER	4120	Evaluation, Assessment and Research in Teaching and Learning of Physical Education 7-12	3
HPER	4301	Sports Training Methodology I	3
EDUC	3875	Educational Theory, Methodology and Technological Resources in the Teaching of Physical Education at the Secondary Level 7-12	3

#### \*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 new 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.

## School Health (Physical Education)

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN EDUCATION IN SCHOOL HEALTH

General Education Requirements	51 credits
Core Course Education Requirements	41 credits
Major Requirements	29 credits
Elective Courses	<u>3 credits</u>
Total	124

#### General Education Requirements - 51 credits

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

#### Core Course Education Requirements - 41 credits

EDUC	1080	Field Experiences in the Educational Scenario I	1
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2060	Use of Technology in Education	2
EDUC	2870	The Exceptional Student Population	4
EDUC	2890	Field Experiences in the Educational Scenario II	2
EDUC	3013	Teaching Strategies	2
EDUC	3015	Clinical Experiences in the Educational Scenario I	2
EDUC	4011	Evaluation and Assessment	3
EDUC	4012	Classroom Research	2
EDUC	4013M	Clinical Experiences in the Educational Scenario II	4
EDUC	4050	Curriculum Design	2
EDUC	4551	Integration of Basic Knowledge and Communication Skills	1
EDUC	4552	Integration of Professional Skills	1
HIST	3010	Historical Process of the United States of America	3

#### Major Requirements - 29 credits

HPER	1870	Themes in Health, Physical Education and Recreation	2
HPER	2030	Philosophy and Basic Principles of Health	3
HPER	2320	First Aid and Personal Safety for Children, Youth and Adults	2
HPER	3430	Personal and Community Health and Safety	3
HPER	3900	Human Sexuality	3
HPER	4140	Assessment, Evaluation and Research of Teaching and Learning in School Health Education	3
BIOL	1006	Fundamentals of Biology	4
EDUC	3886	Educational Theory, Methodology and Technological Resources in Teaching School Health	3
EDUC	4030	Environmental Health and Ecology	3
EDUC	4040	Counseling in Health Aspects	3

## Sports Technology (Physical Education)

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SPORTS TECHNOLOGY

General Education Requirements	48 credits
Major Requirements	56 credits
Elective Courses	<u>9</u> credits
Total	113

#### General Education Requirements - 48 credits

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

#### Major Requirements - 56 credits

HPER	2210	Fundamentals of the Discipline and the Profession of Physical Education, Function of the Teacher in the Discipline and in Society	3
HPER	2320	First Aid and Personal safety for Children, Youth and Adults	2
HPER	3010	Sports Psychology	3
HPER	3050	Introduction to the Prevention and Management of Injuries	3
HPER	3051	Therapeutic Massages	3
HPER	3270	Anatomy and Kinesiology of Movement	3
HPER	3330	Experiences in Movement IV	3
HPER	3360	Experiences in Movement V	3
HPER	3380	Diagnosis and Prescription of Individual and Team Sports	3
HPER	3430	Personal and Community Health and Safety	3
HPER	3480	Nutrition for Sports Training	3
HPER	3495	Principles of Therapeutic Recreation	3
HPER	3800	Trends and Issues in Athletic Training	3
HPER	4020	Management of Physical Education Programs, Wellness, Health and Sports	3
HPER	4120	Evaluation, Assessment and Research in Teaching and Learning of Physical Education	3
HPER	4170	Physiology of Human Movement	3
HPER	4301	Sports Training Methodology I	3
HPER	4441	Practicum in Athletic Training I	3
HPER	4442	Practicum in Athletic Training II	3

## Health Sciences (B.S.)

The program of the Bachelor of Science Degree in Health Sciences is interdisciplinary and flexible. It offers the opportunity to complete a Bachelor’s Degree to those students that have an associate degree in health areas. The Program is designed to promote the development of sensitive health professionals that possess the knowledge and skills to offer quality health services. This knowledge is based on concepts and principles of natural, social and health sciences.

Students may choose a specialization in administration or education, which will allow them to occupy positions of a higher hierarchy and of leadership in their work. Graduates from this program will work within their professional field, in areas such as: government agencies, insurance companies, pharmaceuticals, medical and diagnosis equipment companies, managerial positions such as department managers in hospitals or offices.

## Admission Requirements

Candidates desiring to enter this Program must comply with the following requirements:

1. Have completed in a university institution an associate degree in a health area.
2. Have a minimum grade point average of 2.50.
3. Comply with all the admission requirements at the undergraduate level established in this Catalog and by the Campus.
4. Comply with the requirements established by the Department of Health Sciences:
  - Health Certificate
  - Hepatitis B Vaccination Certificate
  - No Criminal Record Certificate
5. Pass an interview with the Admissions Committee.

The Ponce Campus is authorized to offer this Program.

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN HEALTH SCIENCES

An Associate Degree in a health related area (Includes 24 credits in the General Education Program for Associate Degrees) 66 to 81 credits	
General Education Requirements at the Bachelor's Level	21 credits
Major Requirements	25 credits
Specialization Requirements	<u>16 to 22</u> credits
Total	130 to 149

### General Education Requirements at the Bachelor's Level - 21 credits

The number of credits to be taken in the General Education Program will depend on the courses the student has passed at the associate degree level. Twenty-one (21) academic credits are required at the bachelor's level. Students of this Program are exempt from taking the course GEHP 3000 – Well-Being and Quality of Life.

### Major Requirements - 25 credits

HESC	3005	Human Development	3
HESC	3010	Essential Concepts in Health Sciences	3
HESC	3020	Health and Illness throughout the Life Cycle	4
HESC	4010	Research Methods in Health Sciences	3
HESC	4015	Quality Guarantee and Improvement	3
HESC	4030	Collective Health Promotion	3
PSYC	1051	General Psychology I	3
PSYC	3001	Statistical Methods I	3

### Specialization Requirements - 16 to 22 credits

## Administration (Health Sciences)

### Administration - 16 credits

HESC	4050	Planning and Marketing of Health Services	3
HESC	4065	Auditing Principles Applied to Health Services	3
HESC	4915	Internship	4
BADM	1900	Fundamentals of Management	3
BADM	3490	Supervision	3

## Education (Health Sciences)

### Education - 22 credits

HESC	4055	Methods and Techniques in Teaching Health Sciences	3
HESC	4060	Design and Development of an Educational Health Plan	3
HESC	4913	Internship	4
EDUC	2021	History and Philosophy of Education	3
EDUC	2022	Society and Education	3
EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3

## History (B.A.)

The major in history offers a program of study leading to the Bachelor of Arts Degree in History. The Program provides students with an appreciation of the development of mankind in addition to providing essential training for careers in education, law, literature, communication, journalism, art, library science, curatorship, religion, private enterprise and public service.

The Metropolitan Campuses is authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN HISTORY

General Education Requirements	45 credits
Major Requirements	33 credits
Prescribed Distributive Requirements	12 credits
Required Related Courses	23 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 Puerto Rico.

### Major Requirements - 33 credits

HIST	1020	The Ancient World	3
HIST	1030	The Medieval World	3
HIST	1040	The Modern World	3
HIST	1050	The Contemporary World	3
HIST	2030	Colonial Latin America	3
HIST	2050	Puerto Rico I	3
HIST	2055	Puerto Rico II	3
HIST	3050	United States I	3
HIST	3055	United States II	3
HIST	4020	Historiography	3
HIST	4210	Historical Research	3

### Prescribed Distributive Requirements - 12 credits

Twelve (12) credits from the following courses:

HIST	2010	Latin American Indigenous Cultures	3
HIST	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 <sup>th</sup> 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 <sup>th</sup> and 20 <sup>th</sup> 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 - 23 credits**

Choose eight (8) credits 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 fifteen (15) 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 <sup>th</sup> Century	3
HIST	3110	Research in History and Puerto Rican Literature	3

**Hotel Management (B.B.A.)**

The fundamental purpose of the Bachelor’s Degree in Business Administration in Hotel Management is to prepare students in disciplines that will allow them to perform as managers at different levels in hotels.

Due to the nature of the hotel industry, graduates need to communicate effectively in English as well as Spanish. In order to develop communication skills in English, students are required to reach linguistic proficiency of at least the intermediate level (GEEN 1201, 1202 and 1203) and to pass a course of oral communication skills related to the hotel industry in English (HMGT 2100). Some of the courses of the major (HMGT), including the Internship course (HMGT 4915), are offered in English.

The Program aims to develop in the student the competencies in hotel management that promote an efficient and productive operation in the following areas: standards for human resources management, customer services, rates, publicity, food services: manage dining rooms services, bars and banquets, budget management and maintenance of physical facilities.

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

**Retention Requirements**

The Bachelor’s Program in Business Administration in Hotel Management requires that all students show satisfactory academic progress upon completing each academic year, as established in the institutional regulations found in the General Catalog. Furthermore, the student must maintain a minimum grade point average of 2.5 in the major.

In addition to the normal requirements established in the General Catalog, to receive the Bachelor’s Degree in Business Administration in Hotel Management, the student must:

1. Obtain a minimum grade point average of 2.50 in the major at the university level.
2. Have passed the following courses with a minimum grade of C: GEEN 1201, 1202, 1203 or 2311, 2312, 2313.
3. Have passed with a minimum grade of B the major courses: TURI 1020, HMGT 1200 and HMGT 2100.
4. Have passed with a minimum grade of C the other courses of the major and their respective prerequisites (core and major courses).

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

**REQUIREMENTS FOR A BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN HOTEL MANAGEMENT**

General Education Requirements	48 credits
Core Course Requirements	35 credits
Major Requirements	45 credits
Elective Courses	<u>3</u> credits
Total	131

### General Education Program Requirements - 48 credits

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

### Core Course Requirements - 35 credits

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

### Major Requirements - 45 credits

HMGT	1060	Introduction to Marketing in the Hotel Industry	3
HMGT	1200	Introduction to the Hospitality Industry	3
HMGT	2100	Oral Communication Skills in English for Hospitality and Tourism	3
HMGT	2400	Physical Facilities Management	3
HMGT	3010	Reception Department	3
HMGT	3200	Human Resources Management in the Hotel Industry	3
HMGT	3301	Food and Beverage Management I	3
HMGT	3302	Food and Beverage Management II	3
HMGT	3330	Hotel Management	3
HMGT	3500	Information Systems in the Hotel Industry	3
HMGT	4303	Food and Beverage Management III	3
HMGT	4400	Meetings and Conventions Management	3
HMGT	4915	Internship in Hotel Management	3
TURI	1020	Fundamentals of Tourism	3
TURI	2000	Laws and Tourism	3

Credit may be granted for the internship (TURI 4915) to students who have had a satisfactory work experience and who apply for it in writing to the director of the academic department. This credit will be subject to the following:

1. Students have been working full-time in a company for a minimum of two consecutive years within the three-year period immediately prior to the date of their request.
2. Students submit a certification and letter from their employer or the Human Resources Office of their place of employment which specifies:
  - a. Years of experience
  - b. Period of the time employed
  - c. Position or positions held
  - d. Job description
  - e. Copies of evaluations received
  - f. Any other evidence of their professional performance during their employment.
3. Students pay 50% of the tuition costs of the internship course for which they are requesting credit.
4. The experience recognized by the University corresponds to the requirement for the degree that the student hopes to obtain from the Institution.

## Human Resources Management (B.B.A.)

Human Resources Management is a 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.

El estudiante deberá aprobar con la calificación mínima de C los cursos medulares y de concentración requeridos.

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

REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN HUMAN RESOURCES MANAGEMENT

General Education Requirements	48 credits
Core Course Requirements	41 credits
Major Requirements	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	Information Systems in Business	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Business Communication Workshop in Spanish or	
OMSY	3040	Business Communication Workshop in English	3

**Major Requirements - 27 credits**

BADM	2650	Human Relations in the Organization	3
BADM	3330	Human Resources 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
BADM	4973	Integration Seminar in Human Resources	3

**Prescribed Distributive Requirements - 3 credits**

Students will select thee (3) credits from the following courses:

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, 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 (B.A.)

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 distance 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</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.

#### 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 (B.S.)

The Bachelor of Science Program in Industrial Chemistry presents a curriculum of an interdisciplinary nature that in general terms, trains the student with specific knowledge on industrial subjects such as chemical manufacture, pharmaceutical manufacture, validations, technical service aspects, laboratory and industrial chemical analysis, and environmental management. The Program is characterized by the combination of knowledge in chemistry, biology, mathematics and courses regarding the mentioned industrial subjects.

Students interested in being admitted to the professional examination for chemists must pass the courses of Physical Chemistry (CHEM 3610 and 3920).

The Bayamón Campus is authorized to offer this Program.

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN INDUSTRIAL CHEMISTRY

General Education Requirements	48 credits
Major Requirements	80 credits
Elective Courses	<u>6</u> credits
Total	134

### General Education Requirements - 45 credits

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

### Major Requirements - 80 credits

CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221, 2222	Organic Chemistry I, II	8
CHEM	3000	Environmental Chemistry	3
CHEM	3010	Environmental Chemical Analysis	3
CHEM	3350	Pharmaceutical Chemistry	3
CHEM	3320	Analytical Chemistry	4
CHEM	4003	Industrial Chemistry	3
CHEM	4160	Industrial Chemical Analysis	5
CHEM	4850	Process Validation	3
CHEM	4915	Practice in Industrial Chemistry	3
CHEM	4965	Senior Seminar	3
BIOL	1003	Basic Biological Concepts	3
BIOL	2154	Fundamentals of Microbiology	3
COMP	2110	Introduction to Computer Science	3
MATH	1500	Precalculus	5
MATH	2100	Introduction to Probability and Statistics	3
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
PHYS	3001, 3002	General Physics I, II	8

### 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
CHEM	4350	Chemistry of Materials	3
CHEM	4850	Process Validation	3

## Information Technology (B.B.A.)

The Bachelor's Degree Program in Business Administration in Information Technology provides practical preparation for administrators in the areas of Information Technology.

The Program has been designed to facilitate a complete understanding of the goals, functions and operations of business organizations, their information needs and the role of information systems in such organizations. The Program also provides for the development of analytical and technical skills to identify study and resolve problems of information control as well as the communication skills that allow for effective interaction with other members of a business organization, especially the users and implementers of computerized systems of management information. The Program also facilitates the acquisition of knowledge and abilities to effectively administer projects related to management information systems.

Graduates will know and be able to apply technologies related to the Internet, design databases and computer network, analyze and recommend auditing policies and security systems, develop programs in programming languages and will be professionals with ethical principles in the performance of their functions. In addition, in this major, they will have experience in the development of electronic businesses, the planning of entrepreneurial resources and the required concepts of project management of information systems.

This major also provides the background for continuing graduate studies and for the professional development in this discipline. Students must pass the required core and major courses with a minimum grade of C.

The Program aims to prepare professionals with the following characteristics:

### General competencies:

1. Capacity to understand the natural complexities of the profession and attend to these in a satisfactory manner.
2. Ability to understand the basic elements of an organization, as well as its interrelations in order to achieve the capacity to recommend solutions that fully meet the information needs and requirements of a business.
3. Capacity to understand and apply new technologies and trends in the computer area and in information technology to create effective solutions within the organization.
4. Capacity to make decisions based on the acquired knowledge and the available information in harmony with the highest moral and ethical standards related to computer technology and information in general.
5. Ability to analyze the conflictive situations to which the information specialist is often exposed.
6. Ability to communicate findings and recommendations both orally and in writing.
7. Ability to develop optimal interpersonal relations.
8. The desire to continue to improve themselves professionally and to always be on the alert for new changes, trends and technologies.
9. Ability to work with other professionals and to attain a high degree of productivity in work teams and/or in projects.
10. Aspiration to contribute in a positive way to the society in which they work.
11. Awareness of the importance of continuing education through training to acquire new knowledge and skills or to retrain for updating and redefining skills and knowledge.
12. Demonstration of the proper values, habits, attitudes and qualities for a person educated in an integrated manner.

The Aguadilla, Barranquitas, Bayamón, Fajardo, Metropolitan, and San Germán campuses are authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN INFORMATION TECHNOLOGY

General Education Requirements	48 credits
Core Course Requirements	35 credits
Major Requirements	33 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>3</u> credits
Total	125

### General Education Requirements - 48 credits

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

### Core Course Requirements - 35 credits

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

### Major Requirements - 33 credits

CMIS	1100	Introduction to Information Systems	3
CMIS	1200	Programming Algorithms	3
CMIS	2310	Visual Programming in Information Systems	3
CMIS	2450	Introduction to the Internet in the Enterprise	3
CMIS	3130	Database Design and Management	3
CMIS	3350	Telecommunications and Business Networks	3
CMIS	3400	Electronic Businesses	3
CMIS	3420	Information System Analysis and Design	3
CMIS	4500	Audit and Security of Information Systems	3
CMIS	4915	Practicum	3
CMIS	4970	Seminar in Information Systems	3

### Prescribed Distributive Requirements - 6 credits

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

CMIS	2301	COBOL I	3
CMIS	3330	C Language	3
CMIS	3570	Internet Programming	3
CMIS	4610	Information Systems for Planning Entrepreneurial Resources	3
CMIS	4870	Management of Information Systems Projects	3

Credit may be granted for the practicum (CMIS 4915) to students who have had a satisfactory work experience and who apply for it in writing to the director of the academic department. This credit will be subject to the following:

1. Students have been working full-time in a company for a minimum of two consecutive years within the three-year period immediately prior to the date of their request.
2. Students submit a certification and letter from their employer or the Human Resources Office of their place of employment which specifies:
  - a. Years of experience
  - b. Period of the time employed
  - c. Position or positions held

- d. Job description
- e. Copies of evaluations received
- f. Any other evidence of their professional performance during their employment.

3. Students pay 50% of the tuition costs of the practicum course for which they are requesting credit.

The experience recognized by the University corresponds to the requirement for the degree that the student hopes to obtain from the Institution.

## **Installation(s) and Repair of Computerized Systems and Networks (A.A.S. and B.S.)**

### **Associate Program**

The Associate of Applied Sciences Degree in Installation and Repair of Computerized Systems and Networks contains a curriculum that adapts the knowledge, theories, techniques and practices in the field of network administration to current and up-and-coming technologies. This Program allows students to acquire a technical competence according to their interests and aptitudes in a changing society.

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

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

#### **REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE IN INSTALLATION AND REPAIR OF COMPUTERIZED SYSTEMS AND NETWORKS**

General Education Requirements	24 credits
Major Requirements	<u>43 credits</u>
Total	67

#### **General Education Requirements - 24 credits**

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

#### **Major Requirements - 43 credits**

CSIR 1120	Design of Computer Programs	3
CSIR 1131	Electronics I	3
CSIR 1210	Computer Mathematics	3
CSIR 1220	Data Communication	2
CSIR 1230	Microcomputer Operating Systems	3
CSIR 2121	Network Administration I	3
CSIR 2122	Network Administration II	3
CSIR 2132	Electronics II	3
CSIR 2140	Electronic Microprocessors	3
CSIR 2150	Installation and Configuration of Programs in Microcomputers and Networks	3
CSIR 2160	Network Installation	3
CSIR 2210	Assembly and Technical Maintenance of Personal Computers	3
CSIR 2230	Network Diagnosis, Maintenance and Service	3
CSIR 2910	Internship	2
BADM 1550	Administration and Business Organization	3

## Bachelor's Program

The Bachelor of Science Degree in Installation and Repair of Computerized Systems and Networks contains a modern curriculum that adapts to the knowledge, theories, techniques and practices in the field of Networks Administration. This Program allows the student to acquire a detailed knowledge of the organization, architecture, operation and limitations of network systems. In addition, it develops in students a professional competence according to their interests and aptitudes in a changing society.

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

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

### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN COMPUTER SCIENCE IN INSTALLATION AND REPAIR OF COMPUTERIZED SYSTEMS AND NETWORKS

General Education Requirements	48 credits
Major Requirements	64 credits
Elective Courses	<u>9</u> credits
Total	121

#### General Education Requirements - 48 credits

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

#### Major Requirements - 64 credits

CSIR	1120	Computer Programs Design	3
CSIR	1131	Electronics I	3
CSIR	1210	Mathematics for Computers	3
CSIR	1220	Data Communication	2
CSIR	1230	Microcomputer Operating Systems	3
CSIR	2121	Network Administration I	3
CSIR	2122	Network Administration II	3
CSIR	2132	Electronics II	3
CSIR	2140	Electronic Microprocessors	3
CSIR	2150	Microcomputer and Network Program Installation and Configuration	3
CSIR	2160	Network Installation	3
CSIR	2210	Assembly and Technical Maintenance of Personal Computers	3
CSIR	2230	Network Design, Maintenance and Service	3
CSIR	3300	Architecture of Computerized Systems	3
CSIR	3310	Database Analysis and Design	3
CSIR	3315	Analysis and Design of Computerized Systems	3
CSIR	3510	Creation of Electronic Presentations and Publications	2
CSIR	4150	Network Security	3
CSIR	4500	Computer Assembly	3
CSIR	4910	Internship	3
CSIR	4950	Current Topics in Network Technology	3
BADM	1550	Business Management and Organization	3

## Insurance (A.)

The Associate Degree in Insurance provides the option of a short-term career for a job market unknown by the majority of high school graduates. The specialized content of this program opens other training opportunity to

university students who already possess a degree or are in the process of completing one; thus diversifying its job opportunities.

The structure of the specialization provides students formation in three identifiable categories: Life Insurance, Personal Insurance, and Personal and Commercial Insurance.

The Metropolitan Campus is authorized to offer this Program.

#### REQUIREMENTS FOR THE ASSOCIATE DEGREE IN INSURANCE

General Education Requirements	24 credits
Major Requirements	<u>34 credits</u>
Total	61

#### General Education Requirements - 24 credits

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

#### Major Requirements - 34 credits

INSR 1400	Introduction to Risk and Insurance	3
INSR 1500	Introduction to Disability Life Insurance	3
INSR 1600	Life Insurance	3
INSR 1700	Employee Benefit Planning	3
INSR 1800	Personal Uses for Multilinear Insurance	3
INSR 1900	Commercial Uses and Functional and Operational Aspect of Multilinear Insurance	3
ACCT 1161	Introduction to Financial Accounting	4
BADM 2050	Business Finance	3
MAEC 2211	Principles of Economy (Micro)	3
MAEC 2212	Principles of Economy (Macro)	3
MAEC 2221	Basic Statistics	3

### Management (B.B.A.)

This Program is designed to provide the student with the principles, concepts and practices of management. Its aim is the integrated study of the main management roles of planning, organization, leadership and control. The knowledge of these management roles, concepts and practices enables the development of the necessary skills for business success.

The Ponce Campus is authorized to offer this Program on-line.

#### REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN MANAGEMENT

General Education Requirements	48 credits
Core Course Requirements	41 credits
Major Requirements	18 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>8 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 - 41 credits

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

## Major Requirements - 18 credits

BADM	2650	Human Behavior in Organizations	3
BADM	3313	Commercial Law I	3
BADM	3320	Public Policy toward Business	3
BADM	3330	Human Resource Management	3
BADM	4800	Operations Management	3
MKTG	2220	Strategic Marketing Management	3

## Prescribed Distributive Requirements - 6 credits

Six (6) additional credits in 3000 and 4000 level courses in Business Administration (BADM).

## Managerial Economics (B.B.A.)

The major in managerial economics is designed to prepare students to analyze the principles of economics, finance, accounting, information systems and marketing and how to apply them to the situations and problems that arise in the administration of companies within the economic and social context of the country.

It is also designed to prepare professionals with managerial skills, enterprising capacity and to be highly competitive in order to function in the globalized world and to contribute to the development of Puerto Rico.

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

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

## REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN MANAGERIAL ECONOMICS

General Education Requirements	48 credits
Core Course Requirements	41 credits
Major Requirements	21 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<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	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Business Communication Workshop in Spanish or	
OMSY	3040	Business Communication Workshop in English	3

### **Major Requirements - 21 credits**

MAEC	3234	Labor Economics	3
MAEC	3236	Public Finance and Fiscal Policy	3
MAEC	3243	International Economics	3
MAEC	4213	Macroeconomics Applied to Business	3
ENTR	2200	Fundamentals of Entrepreneurship	3
ENTR	3900	Entrepreneurial and Managerial Strategies	3
ENTR	4400	Design and Development of a Business Plan	3

### **Prescribed Distributive Requirements - 6 credits**

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

MAEC	1213	History of Economic Thought	3
MAEC	3235	Money and Banking	3
MAEC	3240	Mathematics for Decision-Making	3
MAEC	3330	Economic Development of Puerto Rico	3
MAEC	4220	Introduction to Econometry	3
FINA	3190	The Stock Market	3
FINA	3120	Advanced Managerial Finance	3
FINA	3200	Principles of Investment	3
MKTG	4243	Marketing Research	3
BADM	3340	Management Policies and Strategies	3

## **Marketing (B.B.A.)**

Marketing is one of the most important functional areas of business administration. It consists of a variety of activities designed to serve not only large or small enterprises but the individual consumer as well. It is also considered the linking factor between production and consumerism, therefore affecting the nature and level of

employment, the means of communication, the distribution and the degree of social and personal satisfaction. Students must pass the required core and major courses with a minimum grade of C.

The purpose of the marketing program is to provide the student with the theoretical and practical knowledge of this discipline to insure the development of sensible marketing and wise consumerism.

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

#### REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN MARKETING

General Education Requirements	48 credits
Core Course Requirements	41 credits
Major Requirements	21 credits
Prescribed Distributive Requirements	9 credits
Elective Courses	<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	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Business Communication Workshop in Spanish or	
OMSY	3040	Business Communication Workshop in English	3

#### Major Requirements - 21 credits

MKTG	2220	Strategic 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 insurance 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 Bayamón Campus is authorized to offer this minor.

MAEC	2221	Basic Statistics	3
MKTG	1210	Introduction to Marketing	3
MKTG	2220	Strategic 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 Bayamón Campus is authorized to offer this Minor.

### Requirements of the Minor in Sales - 21 credits

MKTG	1210	Introduction to Marketing	3
MKTG	2220	Strategic 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 (B.A. and B.S.)

The Program in Mathematics aims to develop in students the methodology of rigorous abstract and deductive reasoning pertinent to this discipline. It also will familiarize students with the principal applications in science, engineering, economics and business. The goal of the Program is to prepare students who wish to pursue graduate studies or pursue a career that requires vast mathematical knowledge.

The mathematics curriculum offers programs of study for the Bachelor of Arts Degree in Mathematics and Bachelor of Science Degree in Mathematics. The latter has two majors: Pure Mathematics and Computer Science. For admission to this Program, students must have passed MATH 1500, Precalculus, with a minimum grade of C.

## Mathematics (B.A.)

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

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN MATHEMATICS

General Education Requirements	48 credits
Core Course Requirements	32 credits
Major Requirements	17 credits
Elective Courses	<u>19</u> credits
Total	116

### General Education Requirements - 48 credits

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

### Core Course Requirements - 32 credits

MATH	1500	Precalculus	5
MATH	2000	Discrete Methods	3
MATH	2100	Introduction to Probability and Statistics	3
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3080	Topics in Geometry	3
MATH	3130	Theory of Numbers	3
MATH	3350	Linear Algebra	3
MATH	4100	Applied Algebra	
		or	
MATH	4391	Abstract Algebra I	3

### Major Requirements - 17 credits

Nine (9) credits from courses at the 3000 and 4000 levels. MATH 4430 is recommended for students of this program interested in the teaching of mathematics at the high school level.

PHYS	3001, 3002	General Physics I, II	8
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## Mathematics (B.S.)

The Bayamón and San Germán campuses are authorized to offer the majors in Pure Mathematics. In addition, the Bayamón Campus is authorized to offer the major in Computer Science.

### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MATHEMATICS

General Education Requirements	48 credits
Core Course Requirements	39 credits
Major Requirements	24 credits
Elective Courses	<u>6 credits</u>
Total	117

### General Education Requirements - 48 credits

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

### Core Course Requirements - 39 credits

MATH	1500	Precalculus	5
MATH	2000	Discrete Methods	3
MATH	2100	Introduction to Probability and Statistics	3
MATH	2251	Calculus I	5
MATH	2252	Calculus II	4
MATH	3091	Mathematical Statistics I	3
MATH	3250	Calculus III	3

MATH	3350	Linear Algebra	3
MATH	3400	Differential Equations	3
MATH	4970	Integration Seminar I	1
COMP	2110	Introduction to Computer Science	3
COMP	2120	Logical Programming	3

### Major Requirements - 24 credits

One of the following majors is required.

### Computer Science (Mathematics)

#### Computer Science - 24 credits

MATH	3092	Mathematical Statistics II	3
MATH	4151	Numerical Analysis I	3
COMP	2300	Visual Programming	
		or	
COMP	3600	Computer Graphics	3
COMP	2315	Structured Programming	3
COMP	2900	Data Structures	3
COMP	3200	Computer Organization and Assembler Language	3
COMP	3500	Operating Systems	3
		An elective course in Mathematics at the 4000 level	3

### Pure Mathematics

#### Pure Mathematics - 24credits

MATH	4391	Abstract Algebra I	3
MATH	4151	Numerical Analysis I	3
MATH	4550	Advanced Calculus	3
CHEM	1111	General Chemistry I	4
PHYS	3001, 3002	General Physics I, II	8
		An elective course in Mathematics at the 4000 level	3

### 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 Emergencies (A.M.E.)

The course of studies for the Associate Degree in Medical Emergencies aims to prepare students to serve as paramedics and to offer emergency care to clients in pre-hospital scenarios.

The Program is geared to prepare students to use their knowledge and skills proficiently and to provide safe and effective care in emergency situations within the framework of ethical, moral, spiritual and legal values. The paramedic will be capable of controlling the emergency scene, coordinating services and collaborating with other health team members. The Program aims to develop paramedics who will assume responsibility for their professional growth and the advancement of the medical emergency practice.

### Admission Requirements:

1. Comply with all admission norms established in the General Catalog and by the corresponding campus.
2. Provide a certificate of no criminal record issued by the Police of Puerto Rico.
3. Provide a health certificate issued by the Health Department.

### Academic Progress Requirements:

1. Comply with the academic progress norms established in the General Catalog and by the corresponding campus.
2. Pass all major courses with a minimum grade of C.

The Metropolitan Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE ASSOCIATE DEGREE IN MEDICAL EMERGENCIES

General Education Requirements	24 credits
Major Requirements	<u>42</u> credits
Total	66

### General Education Requirements - 24 credits

GESP	Spanish	6
GEEN	English	6
GEMA	1000 Quantitative Reasoning	3

GEHS	2010	Historical Process of Puerto Rico	3
GECF	1010	Introduction to the Christian Faith	3
GEIC	1010	Information and Computer Literacy	3

### Major Requirements - 42 credits

EMMT	1161	Functions of the Paramedic	2
EMMT	1162	Practice in Functions of the Paramedic	1
EMMT	1171	Biomedics I	2
EMMT	1172	Practice in Biomedics I	1
EMMT	1260	Biomedics II	3
EMMT	1271	Medical Emergencies I	2
EMMT	1272	Practice in Medical Emergencies I	2
EMMT	1280	Communication and Dispatch Techniques	2
EMMT	1290	Handling of Patients with Emotional Problems	2
EMMT	2161	Pharmacology in Medical Emergencies	2
EMMT	2162	Practice in Pharmacology in Medical Emergencies	2
EMMT	2171	Gynecological-Obstetrical and Newborn Emergencies	2
EMMT	2172	Practice in Gynecological-Obstetrical and Newborn Emergencies	2
EMMT	2181	Medical Emergencies II	3
EMMT	2182	Practice in Medical Emergencies II	2
EMMT	2190	Extrication and Rescue	2
EMMT	2261	Medical Urgencies	3
EMMT	2262	Practice in Medical Urgencies	1
EMMT	2910	Field Internship	6

## Medical Sonography in Cardiovascular Sonography (B.S.)

The Bachelor of Science Program in Medical Sonography with a major in Cardiovascular Sonography offers a flexible program for students who have an Associate Degree in Radiological Technology and for Certified Radiological Technologists. The main purpose of the Program is to develop clinical competences in medical sonography, as well as to promote the development of a judicious professional, with knowledge and skills to provide high quality services.

The Program offers students the opportunity to develop professionally through the acquisition of experiences in the instructive and clinical areas. The Program includes a base of scientific knowledge supported by concepts of the natural, social and human sciences.

Because sonography is a health allied science, it uses ultrasound to evaluate the well-being of the patient in the course of diagnosing diseases.

It is expected that graduates of this Program will be prepared to work in scenarios such as: public and private hospitals, specialized clinics, medical equipment companies and in industry.

### Admission Requirements

Candidates seeking to enter the Bachelor of Science Program in Medical Sonography must meet the following requirements:

1. Have an Associate Degree in Radiological Technology from an accredited institution of post-secondary studies.
2. Have a minimum average of 2.50 in the degree.
3. Meet the admission norms established in the General Catalog of the University.
4. Be interviewed by the admissions committee and/or the Program coordinator.
5. Meet the admission requirements established by the Department of Health Sciences:
  - Health Certificate
  - Certificate of Immunization against Hepatitis B
  - Certificate of no Criminal Record

The Ponce Campus is authorized to offer this Program.

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MEDICAL SONOGRAPHY IN CARDIOVASCULAR SONOGRAPHY

Requirements of the Associate Degree in Radiological Technology	85 credits
General Education Requirements	18 credits
Major Requirements	<u>43</u> credits
<b>Total</b>	<b>146</b>

### General Education Requirements - 18 credits

To receive the Bachelor of Science Degree in Medical Sonography, students must approve 18 credits in General Education in addition to the 24 credits approved for the Associate Degree. These 18 credits will be taken in the following manner:

- in the Philosophical and Esthetic Thought category, the course GEPE 4040 and either GEPE 2020, 3010 or 3020;
- in the Basic Skills in Spanish category, course GESP 2203;
- in the Basic Skills in English category, course GEEN 1103;
- in the Scientific and Technological Context category, either GEST 2020 or 3030;
- in the of Historical and Social Context category, either GEHS 3020, 3040 or 4030.

### Major Requirements - 28 credits

SONO	3000	Basic Principles of Ultrasound	3
SONO	3010	Physics and Instrumentation of Ultrasound	3
SONO	3021	Images by Ultrasound I (Abdominal)	3
SONO	3022	Images by Ultrasound II (Pediatric and OB/GYN)	4
SONO	4000	High Resolution Sonographies	3
SONO	4010	Muscle/Skeletal Surface Structures Sonography:	3
SONO	4911	Internship in Ultrasound I	3
SONO	4912	Internship in Ultrasound II	3
SONO	4913	Internship in Ultrasound III	3

### Requirements in Cardiovascular Sonography - 15 credits

SONO	4045	Introduction to yhe Cardiac and Vascular Sonography	3
SONO	4055	Cardiovascular Pathophysiology	3
SONO	4065	Intermediate Vascular Sonography	3
SONO	4075	Advanced Vascular Sonography	3
SONO	4914	Internship in Vascular Ultrasound	3

## Medical Technology (B.S. and Certificate)

The Medical Technology Program responds to the mission of preparing professionals to fill the needs of present day Puerto Rico. It aspires to provide an 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). Both programs have an intensive one year curriculum divided in two terms: academic or theoretical and practical. Two groups of students are admitted annually, one in August and the other in March. Upon completion of the

Program, students are eligible to take the professional certification examination offered by the Puerto Rico Board of Examiners for Medical Technologists, the American Society for Clinical Pathologists (ASCP) and the National Certifying Agency for Laboratory Personnel (NCA), these last two have been recently united.

The Programs have affiliations established with different clinical laboratories where students may complete their clinical practice. These facilities are duly recognized by the Department of Health, are certified by CLIA as well as accredited by the Joint Commission of Hospital Accreditation (JCHA), and are certified by NACLS.

The Bachelor of Science degree in Medical Technology and the Professional Post Bachelor Certificate are offered.

### **Admission Requirements**

1. Approval of the following courses\* or their equivalent.

General Biology I, II  
Microbiology  
Immunology  
Anatomy and Physiology  
General Physics I, II  
Precalculus  
General Chemistry I, II  
Analytical Chemistry  
Organic Chemistry I, II  
Biochemistry or Cellular and Molecular Biology

As part of candidate selection process, making an appointment for orientation and academic evaluation in order to verify the knowledge and skills related to the academic requirements mentioned above will be required. The scores obtained will be considered in the admission formula for candidate selection.

\*Some of the above courses have prerequisites.

As part of the selection process of candidates, an interview to evaluate their knowledge and capability related to the academic requirements mentioned above will be required.

In addition, students that opt for the bachelor's program in Medical Technology must have approved the general education requirements or their equivalent as established in the current catalog.

2. Completion of an application form and submission of an official academic transcript from all universities attended.
3. Submission of three (3) letters of recommendation, two of which should be from a faculty member. The scores obtained will be considered in the admission formula for candidate selection.
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. After admission to the Program, students must submit the following documents:
  - a. Health certificate
  - b. Evidence of Hepatitis B vaccination
  - c. Evidence of a current medical plan
  - d. A certificate of no criminal record
  - e. A doping test required in some practice centers.

It is responsibility of the student to apply for admission to the School of Medical Technology. Once the application is completed and the admission requirements are met, students will be selected in a competitive manner according to available space in the Program. form, according to the capacity of the Program. To register in the courses, students must have been accepted in the Program.

## **Program Standards and Procedures**

### **A. Academic Progress**

Each course in both the theory and practice curricula should be completed with a minimum average of 75 percent. Students will be kept informed of their academic progress during the courses. If students do not obtain the minimum of 75% in a course, they may be placed on probation. Students that fail in a minimum of six credits will be dismissed from the Program for academic deficiency. Students dismissed for academic deficiency will not be readmitted to the Program.

### **B. Attendance**

Attendance to the lectures and laboratories is compulsory. Unjustified absences, as established for each course, are sufficient reason for dismissal.

### **C. Conduct**

Students must comply at all times with the established norms, policies and procedures of the Program, as established and available in the Student Handbook of the Medical Technology Program.

No student dismissed from the Program for violation of the Program norms may be readmitted to this Program.

## **External and Internal Transfers**

Transfers from other universities or from this University to MEDT courses are not allowed, these must be made by application for a space or admission through the School.

### **Transfers from Other Universities (External)**

Students from other universities who plan to finish the Bachelor's degree in Medical Technology in this University and who have completed at least three years of university studies in an accredited institution, must have approved the following courses with a minimum grade of C and these will be equivalent to the General Education courses of this Institution:

	Credits
English	9
Spanish	9
Social sciences	6
Humanities	6
Religion	3
Mathematics	<u>9</u>
Total	42

### **Internal Transfers**

Students of Inter American University of Puerto Rico can declare a major in the Bachelor of Science degree in Medical Technology (165) and transfer to the Metropolitan or San Germán campuses which are authorized to offer the major courses of the baccalaureate in Medical Technology. It is the responsibility of the students to request space in the Medical Technology program. They may take the courses of the MEDT major once they have completed all the General Education Requirements, the core course requirements, and have been admitted to the Program.

The process for internal transfer to the School will be realized only if the student is admitted to the Program in agreement with the admission requirements and the available space.

## Medical Technology (Certificate)

The Metropolitan and San Germán campuses are authorized to offer the courses for the Professional Certificate in Medical Technology.

### ACADEMIC REQUIREMENTS FOR THE PROFESSIONAL CERTIFICATE IN MEDICAL TECHNOLOGY

A Bachelor's Degree from an Accredited University	
Specific Requirements*	
Certificate Requirements	<u>46</u> credits
Total	46

### Specific Requirements\*

For the Professional Certificate in Medical Technology the following courses are required prior to the certificate course requirements.

General Biology I and II  
 Microbiology  
 Immunology  
 Anatomy and Physiology  
 General Physics I and II  
 Precálculus  
 General Chemistry I and II  
 Analytical Chemistry  
 Organic Chemistry I and II  
 Biochemistry or Cellular and Molecular Biology

## Medical Technology (B.S.)

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

### ACADEMIC REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MEDICAL TECHNOLOGY

General Education Requirements or their Equivalent	42 credits
Core Course Requirements*	59 or 60 credits
Major Requirements	<u>46</u> credits
Total	147 or 148

\* Some of the courses have additional prerequisites.

### General Education Requirements - 42 credits

Forty-two (42) credits are required as explained in the section "General Education Requirements for Bachelors' Degrees." Students will take the course GEMA 1200 in the Basic Skills in Mathematics category. Students of this Program are exempt from taking the course GEST 2020 or 3030 of the Scientific and Technological Context category, and the course GEHP 3000 of the Health, Physical Education and Recreation category.

### Core Course Requirements – 59 or 60 credits

BIOL	1101	Biology Modern I*	3
BIOL	1102	Biology Modern II*	3

BIOL	1103	Skills Laboratory I	1
BIOL	2103	Zoology	3
BIOL	2013	Skills Laboratory II	1
BIOL	2155	Genetics	3
BIOL	3105	General Microbiology*	3
BIOL	3106	Anatomy and Physiology*	3
BIOL	3405	Immunology*	3
CHEM	1111	General Chemistry I*	4
CHEM	2212	General Chemistry II*	4
CHEM	2221	Organic Chemistry I*	4
CHEM	2222	Organic Chemistry II*	4
CHEM	3320	Analytical Chemistry	4
CHEM	4220	Biochemistry	4
		or	
BIOL	4604	Cellular and Molecular Biology	3
		or	
BMSC	4015	Biochemistry of Human Physiology	3
MATH	1500	Precalculus	5
PHYS	3001	General Physics I	4
PHYS	3002	General Physics II	4

\*Specific and indispensable prerequisites to take major courses. Without these specific prerequisite courses, major courses cannot be taken.

### Major Requirements - 46 credits

MEDT	4501	Basic Principles, Statistics and Molecular Techniques in the Clinical Laboratory	3
MEDT	4510	Clinical Chemistry, Pathology and Molecular Diagnosis	4
MEDT	4520	Body Fluids	1
MEDT	4531	Clinical Immunology	2
MEDT	4532	Blood Banking	3
MEDT	4540	Hematology and Coagulation and Molecular Diagnosis in Hematopathology	4
MEDT	4560	Mycology and Virology	1
MEDT	4570	Clinical Bacteriology and Molecular Diagnosis in Infectious Diseases	4
MEDT	4585	Clinical Parasitology	2
MEDT	4593	Laboratory Administration, Ethics and Education	2
MEDT	4595	Advanced Seminar and Clinical Research	1
MEDT	4914	Clinical Practice in Urinalysis	1
MEDT	4915	Clinical Practice in Blood Banking	3
MEDT	4916	Clinical Practice in Serology, Immunology	2
MEDT	4919	Clinical Practice in Parasitology	1
MEDT	4921	Practice in Clinical Chemistry	4
MEDT	4922	Clinical Practice in Hematology	4
MEDT	4923	Clinical Practice in Microbiology	4

### Microbiology (B.S.)

The Baccalaureate in Science in Microbiology is interdisciplinary. It integrates the areas of sciences and mathematics and applies them to the understanding of microorganisms and their diverse functions. Study of growth, environmental conditions, development and characteristics of the different groups of microorganisms. The Program aims to prepare graduates proficient in the use of isolation, identification, control, and chemical and microbiological analysis techniques. Skills are developed in handling basic and sophisticated equipment, research design and analysis of quantitative and qualitative data. Emphasis is given to the application of asepsis measures and security in a controlled environment.

The Aguadilla, Bayamón, Metropolitan, Ponce, and San Germán campuses are authorized to offer this Program.

#### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MICROBIOLOGY

General Education Requirements	45 credits
Major Requirements	78 credits
Prescribed Distributive Requirements	3 credits
Elective Courses	<u>3</u> credits
Total	129

#### General Education Requirements - 45 credits

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

#### Major Requirements - 78 credits

MICR	3211	Microbial Physiology	3
MICR	4010	Microbial Ecology	3
MICR	4505	Microbiological Application Techniques	2
MICR	4910	Internship	2
BIOL	1101	Modern Biology I	3
BIOL	1102	Modern Biology II	3
BIOL	1103	Skills Laboratory I	1
BIOL	2013	Skills Laboratory II	1
BIOL	2155	Genetics	3
BIOL	3105	General Microbiology	4
BIOL	3106	Anatomy and Human Physiology	4
BIOL	3405	Immunology	3
BIOL	4303	Mycology	3
BIOL	4305	Medical Microbiology	3
BIOL	4433	Industrial Microbiology	3
CHEM	1111	General Chemistry I	4
CHEM	2212	General Chemistry II	4
CHEM	2221	Organic Chemistry I	4
CHEM	2222	Organic Chemistry II	4
CHEM	3320	Analytical Chemistry	4
CHEM	4220	Biochemistry	4
MATH	1500	Precalculus	5
PHYS	3001	Physics I	4
PHYS	3002	Physics II	4

#### Prescribed Distributive Requirements - 3 credits

Select one of the following courses:

BIOL	2153	Biostatistics	3
BIOL	3213	Parasitology	3
BIOL	3309	Food Microbiology	3
BIOL	4306	Virology	3

## Minor in Microbiology

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

### Requirements for the Minor in Mmicrobiology - 19 credits

MICR	3211	Microbial Physiology	3
MICR	4010	Microbial Ecology	3
MICR	4505	Microbiological Application Techniques	2
MICR	4910	Internship	2
BIOL	4303	Mycology	3
BIOL	4305	Medical Microbiology	3
BIOL	4433	Industrial Microbiology	3

## Multidisciplinary Studies (B.A.)

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.

### 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 Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN MULTIDISCIPLINARY STUDIES

General Education Requirements	57 credits
Major Requirements	43 credits
Elective Courses	<u>24 credits</u>
Total	124

### General Education Requirements - 57 credits

Fifty seven (57) General Education credits are required for this Program. In addition to GEHS 2010, students will take: GEHS 2020, 3020, 4020 and 4030 in the Historical and Social Context category; courses GEPE 2020 and GEPE 4040 to fulfill the six credits required in the Philosophical and Esthetical Thought category; GEST 3020 and 3030 in the Scientific and Technological context category.

### Major Requirements - 43 créditos

PHIL	3044	Contemporary Philosophy	3
PHIL	3365	Ethics	3

MUSI	1110	Rudiments of Music	4
ARTS	1103	Technical Foundations and Drawing Practice	3
ARTS	1500	Acting I	3
SPAN	3020	Writing Workshop	3
SPAN	4010	Reading Workshop	3
ENGL	2060	Conversation and Grammar Review	3
ENGL	3025	Writing of Professional Documents	3
SOCI	3753	Social Problems of Puerto Rico	3
POLS	1011	Introduction to Political Science	3
POLS	4033	Inter-American Relations	3
CJUS	2070	Human and Civil Rights	3
PSYC	1051	General Psychology I	3

## Music (B.A. and B.M.)

The Music Program offers four programs leading to a Bachelor's Degree in Music and also offers a minor in music. The Bachelor's Degrees in Music are Applied Music and Music Education: General Vocal and Instrumental. A Bachelor of Arts Degree in music is also offered.

The Degree of Bachelor of Applied Music prepares the students interested in a career as performers for graduate or professional studies abroad. The Bachelor of Music Degree in Music Education meets the curricular content requirements of the Department of Education of Puerto Rico for the certification of teachers of General Vocal and Instrumental Music.

As a means of broadening their employment opportunities in music-related occupations, the Bachelor of Arts Degree gives students the opportunity to receive a degree in music while they explore and study courses in other disciplines.

All students admitted to the Music Department at the San Germán Campus must take a placement test on the rudiments of music and on their instrument, since all students must have chosen an instrument or voice which they will pursue in order to meet the requirements of applied music. In the case of students with little knowledge of the fundamentals of music and/or the instruments of their choice, there are preparatory courses that will enable them to satisfy the demands of the required courses.

### Requirements for Admission to Practice Teaching courses:

1. Be interviewed by the Teaching Internship Coordinator four weeks before the end of the regular semester prior to the semester in which students wish to do their practice teaching.
2. Submit an application for Admission to Teaching Internship accompanied by a transcript of credits or an evaluation for graduation.
3. Present an autobiography with a narrative of musical experience.
4. Have a minimum general grade point index of 2.50 as well as in major courses.
5. Have passed all courses required for the corresponding Teaching Internship, according to the General Catalog in effect.

The San Germán Campus is authorized to offer these programs.

## Music (B.A.)

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.

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 (B.M.)

### Applied Music

The Bachelor of Music Degree in Applied Music is designed for students who want a career as performers.

The study program foment 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, direction 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.

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	6 credits
Total	122

#### General Education Requirements - 48 credits

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

#### Major Requirements - 62 credits

MUSI	(1210-1280)	Chamber Group: Instrumental or	
MUSI	1-4 (221-222)	Chamber Group: Vocal	4
MUSI	1231-4231	Concert Band I-VIII or	
MUSI	1241-4242)	University Choir I-VIII*	7
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	(70-89)	Instrument*** - maximum	4
MUSI	3970	Special Topics – maximum	6

MUSI	4451-4452	Composition I, II	6
MUSI	4510-4520	Conducting II: Choral or Instrumental	4
MUSI	4970	Seminar - maximum	6
		Courses in French, Italian, German and Portuguese	6

\*\*\* 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 has 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 direction 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.

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	66 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>3</u> credits
Total	154

### General Education Requirements - 48 credits

Forty-eight (48) credits of General Education are required for this Program. In addition to GEHS 2010, students will take GEHS 4020 and 4030 in the Historical and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

### 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 - 66 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 Students of other majors I	2
MUSI	122P or 122G	Applied Music for Students of other majors II	1
MUSI		Chamber Ensemble	
		or	
MUSI	221P or 221 G	Applied Music for Students of other majors III	1
MUSI		Chamber Ensemble II	
		or	
MUSI	222P or 222G	Applied Music for Students of other 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
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
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
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	2
MUED	3332	Instrumental Strategies and Techniques III: Metals	2
MUED	3333	Instrumental Strategies and Techniques IV: Wind-Wood	2
MUSI		Chamber Ensemble III	
		or	
		Applied Music for students of other majors V (MUSI 321_)	1
MUSI		Chamber Ensemble IV	
		or	
		Applied Music for Students of other majors VI (MUSI 322_)	1

## Music Education: Instrumental

The Bachelor of Music Degree in Music Education: Instrumental has 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 direction 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.

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	66 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>3 credits</u>
Total	154

#### General Education Requirements - 48 credits

Forty-eight (48) credits of General Education are required for this Program. In addition to GEHS 2010, students will take GEHS 4020 and 4030 in the Historical and Social Context category. Students will take courses GEPE 4040 and GEPE 3010 or 3020 to fulfill the six credits required in the Philosophical and Esthetic Thought category.

#### 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 - 66 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 121S	Applied Music for Students of other majors I	2
MUSI	122P or 122S	Applied Music for Students of other majors II	1
MUSI		Chamber Ensemble	
		or	
MUSI		Applied Music for Students of other majors III (MUSI 221)	1
MUSI		Chamber Ensemble II	
		or	
MUSI	222P or 222G	Applied Music for Students of other majors IV (MUSI 222)	1
MUSI	1231-32/1251	Band or Orchestra I, II	2
MUSI	2231-32/2251	Band or Orchestra III, IV	2
MUSI	3231-32/3251	Band or Orchestra V, VI	2
MUSI	4231-32/4251	Band or Orchestra VII, VIII	2
MUSI	4520	Conducting II: Instrumental	2
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
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
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	2
MUED	3332	Instrumental Strategies and Techniques III: Metals	2
MUED	3333	Instrumental Strategies and Techniques IV: Wind-Wood	2
MUSI		Chamber Ensemble III	
		or	
		Applied Music for students of other majors V (MUSI 321_)	1
MUSI		Chamber Ensemble IV	
		or	
		Applied Music for Students of other majors VI (MUSI 322_)	1

## Minor in Music

The San Germán Campus is authorized to offer this minor.

### Requirements for a Minor in Music - 18 credits

#### Specific Requirements - 12 credits

Applied Music for Students from other Concentrations	2
Concert Band or University Choir	2
Theory and Sight-Reading	3
Piano: Group Class I, II	2
Harmony and Counterpoint I	3

Six (6) additional credits chosen from music courses, except MUSI 1110.

## Music Business Management (A.)

The Associate Degree in 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 discographic companies, music publishing companies and the management and promotion of concerts.

The Program aims to develop the following competencies: to know the different types of musical enterprise models, the legal principles and the different types of contracts related to this industry. In addition, it proposes to familiarize the student with the techniques available to finance musical works. Similarly, the program endeavors to make students aware of the possibilities of self-employment in a highly competitive world.

The Metropolitan Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE ASSOCIATE DEGREE IN 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
GEIC 1010	Information and Computer Literacy	3
GEHS 2010	Historical Process of Puerto Rico	3
GECF 1010	Introduction to the Christian Faith	3
GEMA 1200	Fundamentals of Algebra	3
GEPE 3020	Music Appreciation	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
CMIS 1100	Introduction to Information Systems	3
ENTR 2200	Entrepreneurial Fundamentals	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 (B.S.)

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 distance 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 SCIENCE DEGREE IN NATURAL SCIENCES

General Education Requirements	48 credits
Core Course Requirements	29 credits
Major Requirements	31 credits
Elective Courses	<u>12</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. The students of this program will take GEMA 1200 in the Basic Skills in Mathematics category.

## Core Course Requirements - 29 créditos

BIOL	1101	Modern Biology I	3
BIOL	1102	Modern Biology II	3
BIOL	1103	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 créditos

Students will take 31 major credits selected from the following disciplines: Biology (BIOL), Chemistry (CHEM), Mathematics (MATH) 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 (B.S.)

The Networks and Telecommunications Program offers the most advanced courses in the field of data networks, telecommunications, shared computerized resource environments through corporative networks and administration of these systems based on Windows, Netware, Linux, IBM iSeries and Cisco, among others. Emphasis is on the integration of basic managerial concepts to fortify managerial knowledge. The Program is designed to prepare graduates to plan, design, install and administer networks that will support the functions of the company. It is also expected that graduates will be able to install and configure data network access servers, Internet, Intranet and Extranet electronic mail servers, database servers, storage servers and will be able to develop programming necessary for applications in Internet as well as solutions for radio networks, security technologies, management of voice and video networks, and design the distribution of wiring and optical fiber. Several of the courses offered provide the foundation that will permit graduates to continue their professional improvement and be certified in various professional certification programs. Major courses with the code NTEL must be passed with a minimum grade of C.

## Admission Requirements

Admission requirements to the Bachelor of Science Program with concentration in Networks and Telecommunications are those that apply generally to the University’s Undergraduate Programs.

1. A high school general grade point index of 2.00 or more.
2. Students whose academic indices are from 2.00 to 2.99 will be required to have an interview for the admission to the Program.

The Ponce Campus is authorized to offer this Program.

## REQUIREMENTS FOR THE OF BACHELOR OF SCIENCE DEGREE IN NETWORKS AND TELECOMMUNICATIONS

General Education Requirements	48 credits
Major Requirements	73 credits
Elective courses	<u>3</u> credits
Total	124

## General Education Requirements - 48 credits

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

## Major Requirements - 73 credits

NTEL	1200	Introduction to Networks and Telecommunications	3
NTEL	2101	Network Protocols	3
NTEL	2150	Design of Telecommunications Distribution	3
NTEL	2300	Linux Networks	3
NTEL	3110	Installation and Administration of Networks Systems	3
NTEL	3230	Introduction to JAVA Programming	3
NTEL	3310	E-mail Server	3
NTEL	3401	Minicomputer Operations	3
NTEL	3520	Internet Programming and Administration	3
NTEL	3600	SQL Database Server	3
NTEL	3770	Wireless Networks	3
NTEL	3971	Special Topics in Telecommunications	3
NTEL	4150	Security in Networks	3
NTEL	4500	Audit and Controls in Network Systems	3
NTEL	4520	Voice and Video Networks	3
NTEL	4610	Storage Networks	3
NTEL	4750	Networks Management	3
NTEL	4910	Practicum in Telecommunications	3
ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3
CMIS	1100	Introduction to Information Systems	3
CMIS	2200	Programming Algorithms	3
MATH	1070	Fundamentals of Applied Mathematics	3
MKTG	1210	Introduction to Marketing	3

## Nursing (A.A.S. and B.S.N.)

The Nursing Program has as its mission the formation of nurses able to offer competent, sensible, effective, safe, and quality nursing care to the client person, family and community. The Program aims to produce graduates prepared to:

1. Provide care with autonomy and with interdisciplinary collaboration and sensitivity to ethical-legal and cultural values and directed to the achievement of the best results for the client.
2. Coordinate care by applying leadership and management skills that lead to the highest quality care with the minimum of cost.
3. Assume a commitment as a member of the discipline in harmony with the standards of the practice.

For the development of this professional diverse and flexible modalities of study are offered. This facilitates mobility from the level of the associate degree to the baccalaureate.

It is expected that students who decide to leave the Program to work as Associate Nurses be able to:

1. Apply theoretical and practical knowledge of the nursing, science and humanistic, disciplines when they analyze the biological, psychological, social and spiritual determinants of health in the different growth and development stages.
2. Demonstrate updated clinical skills in therapeutic interventions when offering care to the client throughout the continuum of health and disease in structured scenarios

3. Use the Nursing Process as an instrument in making clinical decisions and, simultaneously demonstrate critical thinking and skills in problem solving when offering safe, quality and cost-effective care.
4. Demonstrate responsibility and ethical-legal commitment with humanistic care in response to the changing needs of society.
5. Demonstrate effective management, coordination and collaboration skills in care as a member of the interdisciplinary team in such a way that care can improve continuously.
6. Demonstrate responsibility and commitment for self development and that of the nursing profession.
7. Use communication skills and technology to maintain the quality of care offered to the client and to improve their own knowledge.

### **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 biopsychosocial 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.

The Associate Program of the Metropolitan Campus is accredited by the *Accreditation Commission for Education in Nursing* (ACEN), formerly *National League for Nursing Accrediting Commission, Inc.* (NLNAC) (<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), formerly *National League for Nursing Accrediting Commission, Inc.* (NLNAC) (<http://www.acenursing.org>).

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

#### Major Requirements - 41 credits

NURS 1111	Fundamentals in 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, Physical Education and Recreation category.

### **Major Requirements - 72 credits**

NURS	1111	Fundamentals in 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 (A.S.)

The Associate of Science Degree Program in Occupational Therapy has as its mission to offer students an educational program of the highest quality. It is designed to offer students scientific knowledge based on the concepts and principles of natural, social and humanistic sciences. In occupational therapy, the human being is seen as a holistic being: body, mind and spirit

The program aims to prepare a health paraprofessional to provide specialized treatment under the supervision of an Occupational Therapist properly qualified by the pertinent agencies. The Program aims to promote independence, productivity, quality of life and rehabilitation in the occupation areas to facilitate a state of health and general well-being in the clients.

It aims to prepare the student as an Occupational Therapy Assistant through development of skills that support and facilitate the adaptation process of clients with physical and emotional incapability. It incorporates the new trends and technology in the field.

Graduate of this program will be prepared to work in hospitals, schools, rehabilitation centers, health care programs in the home, hospices, psycho-social care centers, and special education centers.

### Admission Requirements

1. Meet the Inter American University admission requirements.
2. Have minimum grade point index of 2.50.
3. Provide a health certificate issued by the Health Department or an authorized doctor.
4. Provide a certificate of no criminal record issued by the police of Puerto Rico.
5. Provide evidence of vaccination against Hepatitis B.

### Retention Requirements

1. Meet all the academic progress norms established in the University's General Catalog.
2. Pass all major courses with a minimum grade of C.
3. Maintain a minimum grade point index of 2.00.
4. Students obtaining a grade less than C twice in the same course or in three courses of the major will be placed on probation for a period not greater than one academic year. Students, who, during the probationary period, do not reach the required minimum grade point index may not continue in the Program, but may choose to request admission to another study program.

### Graduation Requirements

1. Students must pass all major courses with a minimum grade of C.

The Ponce Campus is authorized to offer this Program.

## REQUIREMENTS FOR THE ASSOCIATE OF SCIENCE DEGREE IN OCCUPATIONAL THERAPY

General Education Requirements	24 credits
Major Requirements	<u>64</u> credits
Total	88

### General Education Requirements - 24 credits

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

### Major Requirements - 64 credits

OCTH	1000	Introduction to Occupational Therapy	3
OCTH	1031	Therapeutic Modalities I	3
OCTH	1040	Occupational Sociology	3
OCTH	1050	Occupation throughout the Life Cycle	3
OCTH	1060	Anatomy and Applied Physiology	4
OCTH	1120	Processes in Occupational Therapy	3
OCTH	1121	Occupational Therapy Applied to Pediatrics I	3
OCTH	1132	Therapeutic Modalities II	3
OCTH	1141	Occupational Therapy Applied to Psychosocial I	3
OCTH	1911	Instructional Practice	3
OCTH	2001	Physical Dysfunction I	3
OCTH	2013	Therapeutic Modalities III	3
OCTH	2022	Occupational Therapy Applied to Pediatrics II	3
OCTH	2042	Occupational Therapy Applied to Psychosocial II	3
OCTH	2102	Physical Dysfunction II	3
OCTH	2135	Occupational Therapy in Daily Activities	3
OCTH	2921	Clinical Practical I	4
OCTH	2922	Clinical Practical II	8
OCTH	2975	Integration Seminar	3

## Office Systems Administration (A.A. and B.A.)

### Associate Program

The Associate of Arts Degree in Office Systems Administration is designed to provide students the opportunity of developing the fundamental skills and fundamental knowledge of this level, that train them to work effectively as professional administrative support personnel in office systems administration.

The requirements for admission, academic progress, and graduation are those established by this Catalog.

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

### Courses with an asterisk require the use of technological equipment and have a special fee.

All campuses are authorized to offer this Program. In addition, the Barranquitas, Metropolitan and Ponce campuses are authorized to offer this Program through distance learning.

## REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN OFFICE SYSTEMS ADMINISTRATION

General Education Requirements	24 credits
Major Requirements	<u>37</u> credits
Total	61

### 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 - 37 credits

OMSY 1101	Information Processing Skills I*	4
OMSY 1102	Information Processing Skills II*	4
OMSY 2000	Production of Business Documents*	4
OMSY 2040	Spreadsheets in Office Applications*	3
OMSY 2060	Management of Documents and Databases*	4
OMSY 2230	Information Processing in Legal Affairs Offices*	3
OMSY 2240	Information Processing in Medical Service Offices*	3
OMSY 3020	Human Resources in the Organizational Environment	3
OMSY 3030	Business Communication Workshop in Spanish	3
OMSY 3040	Business Communication Workshop in English	3
OMSY 3080	Office Systems Administration	3

## Bachelor's Program

The Bachelor of Arts in Office Systems Administration responds to the need of satisfying the demands of the market for professionals of administrative support with knowledge in the operation of electronic systems, with the knowledge, techniques, procedures, and skills required to perform successfully in the office. This Program offers the cultural background and the basic knowledge of office administration that allow the professional administrative support personnel to participate effectively in decision-making, analysis of data, managing and processing of information, oral and written communication and in establishing effective interpersonal relations.

This Program aims to prepare professional administrative support personnel with the skills and knowledge necessary to explore self-employment as a viable alternative in other professional careers. In addition, it aspires to prepare self-directed students that can work in their future job with a minimum of supervision and that have the ability to work in a team.

The Program articulates the levels of preparation of the associate and Bachelor's Degrees. During the first years of studies the student is offered the knowledge and skills of the associate degree, while during the last two years, there is emphasis on the knowledge and skills at the professional or bachelor degree levels. This way, it offers students the opportunity to obtain the Associate of Arts Degree in Office Systems Administration, once the student completes the 60 credits that are stipulated as requirements.

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

The Professional Practice course may be accepted for students who request it and show that they have satisfactorily met the established requirements. The University will only accept experiences that correspond to the degree that students hope to obtain from the Institution. This acceptance requires that students:

1. Make a formal request to the Director of the Department in which they show evidence of having worked without interruption for a minimum term of three years in a position similar or equivalent to an office administrator.

2. Present a Portfolio in which there is evidence of:
  - a. years of experience
  - b. period of time employed
  - c. positions or positions occupied
  - d. description of duties
  - e. equipment used
  - f. copy of evaluations received
  - g. work that evidences skills developed in the position occupied
  - h. any other evidence of the professional work during the time of employment
3. Pass an interview process, which will be coordinated by the Director of the Department along with faculty members.
4. Pay 50% of the tuition cost of the course OMSY 4910 – Professional Practicum.

**The courses that require the use of technological equipment have a special fee. Such courses are identified by an asterisk.**

All campuses are authorized to offer this Program.

#### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN OFFICE SYSTEMS ADMINISTRATION

General Education Requirements	48 credits
Major Requirements	61 credits
Related Requirements	7 credits
Elective Courses	<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.” In addition to the course GEHS 2010--Historical Process of Puerto Rico, students of this Program will take course GEHS 2020 – Global Vision of Economy from the Historic and Social Context category. Students will select the other three (3) prescribed distributive credits from those available in this category.

#### Major Requirements - 61 credits

OMSY	1010	Speed Writing in Spanish	3
OMSY	1101	Information Processing Skills I*	4
OMSY	1102	Information Processing Skills II*	4
OMSY	2000	Production of Business Documents*	4
OMSY	2040	Spreadsheets in Office Applications*	3
OMSY	2060	Management of Documents and Databases*	4
OMSY	2230	Information Processing in Offices of Legal Affairs*	3
OMSY	2240	Information Processing in Offices of Medical Services*	3
OMSY	3000	Medical Services Billing*	3
OMSY	3020	Human Resources in the Organizational Environment	3
OMSY	3030	Business Communication Workshop in Spanish	3
OMSY	3040	Business Communication Workshop in English	3
OMSY	3050	Graphic Art Design for Offices*	3
OMSY	3080	Office Systems Administration	3
OMSY	3500	Interactive Business Communication in English	3
OMSY	4010	Integrated Application Programs in Office Administration*	3
OMSY	4500	Telecommunications in the Office*	3
OMSY	4910	Professional Practicum	3
OMSY	4970	Integrating Seminar	3

### Related Requirements - 7 credits

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3

### Minor in Office Systems Administration

The Minor in Office Systems Administration is designed to offer students the opportunity to acquire additional knowledge and skills that will allow them to perform administrative support tasks in different offices.

All campuses are authorized to offer this minor.

### Requisitos de la Concentración Menor en Administración de Sistemas de Oficina - 25 créditos

OMSY	1101	Information Processing Skills I	4
OMSY	1102	Information Processing Skills II	4
OMSY	2000	Production of Business Documents	4
OMSY	2060	Management of Documents and Daabases	4
OMSY	2230	Information Processing in Offices of Legal Affairs	
		or	
OMSY	2240	Information Processing in Offices of Medical Service	3
OMSY	3030	Business Communication Workshop in Spanish	
		or	
OMSY	3040	Business Communication Workshop in English	3
OMSY	3080	Office Systems Administration	3

### Operations Management (B.B.A.)

Operations Management is an area of significant impact in business procedures. The aim of this Program is to provide the student with the knowledge for an effective application of production factors in manufacturing and service activities. Students must pass the required core and major courses with a minimum grade of C.

The Bayamón, Metropolitan and Ponce Campus are authorized to offer this Program. The Ponce Campus is also authorized to offer this Program through distance learning.

### REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE IN OPERATIONS MANAGEMENT

General Education Requirements	48 credits
Core Course Requirements	41 credits
Major Requirements	21 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<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	2100	Managerial Finance	3
MAEC	2140	Fundamentals of Quantitative Methods	3
MAEC	2211	Principles of Economics (MICRO)	3
MAEC	2212	Principles of Economics (MACRO)	3
MAEC	2221	Basic Statistics	3
MAEC	2222	Managerial Statistics	3
MKTG	1210	Introduction to Marketing	3
OMSY	3030	Business Communication Workshop in Spanish or	
OMSY	3040	Business Communication Workshop in English	3

### **Major Requirements - 21 credits**

BADM	3250	Transportation Management	3
BADM	3340	Management Policies and Strategies	3
BADM	3820	Managerial Science	3
BADM	4800	Operations Management	3
BADM	4820	Buying and Materials Management	3
ENTR	2200	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).

## **Optical Science Technology (A.A.S.)**

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 and distance 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	Fundamentals of Physics I	3
OPST 1112	Fundamentals 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 (A.A.S.)

The course of studies for the Associate of Applied Science Degree in Pharmacy Technician aims to develop technicians with the necessary knowledge and skills that will enable them to perform efficiently and responsibly as Pharmacy Technicians.

The Program is designed to offer the scientific knowledge and the necessary technical abilities to work in a pharmacy, handle technological equipment and comply with the regulations governing the profession.

### Admission Requirements:

To be considered for admission, students must meet the following requirements:

1. Have a minimum high school or university grade point 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 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	74

### General Education Requirements - 24 credits

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

### Major Requirements - 50 credits

PHAR 1150	Theoretical Pharmacy	3
PHAR 1155	Pharmaceutical Legislation	2
PHAR 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.

### 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.

- 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

- Meet the Admission Requirements for transfer students or intra university transfers established in the General Catalog of the University.
- Have a minimum average of 2.50 in the university of origin.

### Retention Requirements

- Meet the Academic Progress Norms established in the General Catalog of the University.
- Pass the courses required for the major with the minimum grade of C.

### Graduation Requirements

- Meet the Graduation Requirements established in the General Catalog of the University.
- Complete all the Program requirements.
- 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</u> credits
Total	56

#### General Education Requirements - 27 credits

GESP	Spanish	6
GEEN	English	6
GEMA 1000	Quantitative Reasoning	3
GEHS 2010	Historical Process of Puerto Rico	3
GECF 1010	Introduction to the Christian Faith	3
GEIC 1010	Information and Computer Literacy	3
GEPE 3010	Art Appreciation	3

#### Major Requirements - 29 credits

COMU 1025	Introduction to Graphic Production	3
COMU 1031	Photographic Techniques	3
COMU 1032	Advanced Photographic Techniques	3
COMU 2511	Computer Graphic Production I	3
COMU 2610	Theory and Techniques of Lighting in Photography	3
COMU 2621	Digital Photography I	3
COMU 2622	Digital Photography II	3
COMU 2920	Photographic Portfolio	3
COMU 2971	Seminar on New Trends in Photography	2
ENTR 2200	Fundamentals of Entrepreneurship	3

### Physical Therapist Assistant (A.S.)

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.

### REQUIREMENTS OF THE ASSOCIATE OF SCIENCE DEGREE IN PHYSICAL THERAPY

General Education Requirements		24 credits
Major Requirements		<u>50 credits</u>
	Total	74

#### General Education Requirements - 24 credits

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

#### Major Requirements - 50 credits

PHTH	1000	Introduction to Physical Therapy	3
PHTH	1010	Principles of Patient Care	3

PHTH	1211	Anatomy and Physiology I	4
PHTH	1212	Anatomy and Physiology II	2
PHTH	1222	Therapeutic Modalities	5
PHTH	1223	Pathology	3
PHTH	2050	Dimension of Incapacity	2
PHTH	2051	Communication Skills in Physical Therapy	2
PHTH	2053	Cardiopulmonary Physical Therapy	3
PHTH	2054	Kinesiology and Functional Anatomy	3
PHTH	2055	Human Growth and Development	2
PHTH	2151	Orthopedic Rehabilitation	3
PHTH	2350	Neurological Rehabilitation	4
PHTH	2921	Internship in Physical Therapy I	2
PHTH	2922	Internship in Physical Therapy II	3
PHTH	2923	Internship in Physical Therapy III	4
PHTH	2990	Integration Seminar	2

## Political Science (B.A.)

The mission of the Political Science Program is to provide students with the theoretical and philosophical foundation of the principles of politics and to develop student skills in analyzing and interpreting the political scene and understanding political problems. The Program aims to prepare students to think independently, communicate effectively, understand and analyze complex political structures and how they work in the modern world.

The objective of this Program is to prepare students to work in careers related to public service and/or private enterprises, to continue studies in this discipline, law, consulting, lobbying, communication media, advertisement agencies, and others.

### Profile of the Competencies of Graduates

The program is designed to develop the competencies that will allow the student 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 your knowledge in different professional areas, such as law, education, media, public service and private enterprise.
2. Perform critical analysis 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 to evaluate lines of reasoning.

In Addition, the Program offers two minors: International Relations and Governmental Management.

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</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 - 51 credits

POLS	1011	Introduction to Political Science	3
POLS	2040	Government of the United States	3
POLS	2088	The Government of the Commonwealth of Puerto Rico	3
POLS	2100	Political Analysis and Research Techniques	3
POLS	3080	Political Economics	3
POLS	3100	Comparative Government and Politics	3
POLS	3150	Introduction to International Relations	3
POLS	3401	Classic Political Thought	3
POLS	3402	Modern Political Thought	3
POLS	3501	Political Systems of Latin American	3
POLS	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	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

EVSC	2210	Environmental Policies, Laws and Regulations	3
		or	
POLS	3800	Government, Ecology and Public Environmental Policy	3
SOCI	2080	Criminal Justice System in Puerto Rico	3
		or	
POLS	3170	International Conflicts	3

BADM	3313	Mercantile Law	3
		or	
POLS	3200	Political Sociology	3
BADM	3320	Public Policies toward Business	3
		or	
POLS	3050	Ethics, Religion and Policy	3
POLS	4110	Constitutional Law	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 Policy	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 Law	3

### **Minor in International Relations**

The Metropolitan and San German 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	International 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

### **Polysomnography (Professional Post Associate Certificate)**

This advanced technical certificate is designed to prepare professional in health sciences involved in polysomnography laboratories: the study of sleep patterns and their abnormalities. Students will become qualified in

the study of electroencephalography (EEG), (study of the electrical activity of the brain); electroculography (EOG), (study of the electrical activity of the eye) and electromyography (EMG), (study of the electrical muscle activity). This Certificate also includes the electrocardiology (ECG), (study of the electrical activity of the heart, as well as the effects of sleep on the respiratory system.

### Admission Requirements

1. Have completed an Associate degree in a health related area.
2. Have a minimum grade point average of 2.25.
3. Submit evidence of the following:
  - An up-to-date health certificate
  - Vaccination certificate of Hepatitis B
  - Certificate of no criminal record
  - License and Registry
  - Professional licensure (if applicable)
4. Approval of the course of Cardiopulmonary Resuscitation is required for students of health related areas.

The Ponce Campus is authorized to offer this Program.

### Major Requirements - 13 credits

POLY	3000	Introduction to Polysomnography	3
POLY	3001	Foundations of Polysomnography I	3
POLY	3002	Fundamentos de Polysomnography II	3
POLY	3101	Clinical Polysomnography I	2
POLY	3102	Clinical Polysomnography II	2

## Popular Music (A. and B.A.)

### Associate Program

This program aims to prepare students to face the demanding professional world of popular music; in the areas of the vocal or instrumental performance and the improvisation. This technical preparation is complemented with courses of the history of classic, popular and Puerto Rican music. Likewise, the theoretical courses allow the student to be exposed to the fundamental structures of music as a discipline. The program is designed to develop a competent performer, in his particular level, and in addition, to be aware of his role as an artist within our society. It also offers beginning students, preparatory courses that allow them to obtain the minimum level of performance in their main instrument and in the theoretical foundations of music required to enter the regular program.

### Admission Requirements

1. All students interested in admission to the Program must take an entrance examination that will be offered at the beginning of each academic term before academic activities start. This examination is composed of two parts:
  - a. A written test on music theory and a practical test on auditory discrimination, rhythm and intonation.
  - b. An audition before a jury in the principal instrument.
2. Admission to the Program will be made in one of the following ways:
  - a. Students who pass the entrance examination may be placed in the regular program (first year) at the discretion of the jury.
  - b. Students that do 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.

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</u> credits
Total	77

### General Education Requirements - 24 credits

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

## Major Requirements - 53 credits

MUSI	1122, 1123, 1124	Comparative History of Music I, II, III	9
MUSI	1323, 2324,	Instrumental Ensemble I, II,	
	or		
MUSI	1333, 1334	Choral Ensemble I, II	4
MUSI	1531, 1532	Theory and Sight Singing I, II	6
MUSI	1563, 1564	Group Piano I, II	
	or		
MUSI	1661, 1662	Group Guitar I, II	4
MUSI	2000	Digital Musical Notation	3
MUSI	2531	Improvisation I	3
MUSI	2532	Improvisation II	3
MUSI	2623, 2624	Harmony I, II	6
MUSI	2703	Graduation Concert	3

Students will take 12 credits in performance on their principal instrument from the following courses:

### Principal Instrument - 4 Academic Terms - 12 credits

MUSI	1501, 1502, 2503, 2504	Flute
MUSI	1511, 1512, 2513, 2514	Piano
MUSI	1521, 1522, 2523, 2524	Puerto Rican Cuatro
MUSI	1541, 1542, 2543, 2544	Saxophone
MUSI	1551, 1552, 2553, 2554	Trumpet
MUSI	1571, 1572, 2573, 2574	Trombone
MUSI	1581, 1582, 2583, 2584	Bass
MUSI	1591, 1592, 2593, 2594	Guitar
MUSI	1601, 1602, 2603, 2604	Drums
MUSI	1611, 1612, 2613, 1614	Percussion
MUSI	1631, 1632, 2633, 2634	Violin
MUSI	1641, 1642, 2643, 2644	Voice (Singing)
MUSI	1651, 1652, 2653, 2654	Viola
MUSI	1671, 1672, 2673, 2674	Cello

## Bachelor's Program

The aim of the Program is to develop highly competent musicians with a clear sense of their social responsibility and the historical development of music. Specifically, the program aims to train competent musicians for performance and improvisation in their main instrument at the corresponding level. It also aims to produce musicians able to incorporate technology to their creative process. The program is oriented to develop musicians with an inquisitive, analytical and critical attitude towards the art of music in all its expressions; to form musicians with an ample theoretical base that permits them to face the demanding world of music; to produce musicians receptive to the constant movement of technology in the music field and to prepare musicians who have the practical experiences that allows them to appear professionally in public.

The Program offers preparatory courses to enable students to attain the minimum required performance level in their principal instrument and/or in the theoretical foundations of music required for admission into the regular program. Students in the bachelor's program in popular music must own a principal instrument.

### Admission Requirements

1. All students interested in admission to the Program must take an entrance examination composed of two parts:
  - a) A written and practical test of Music Theory and sight singing.
  - b) An audition before a jury of professors in the principal popular instrument.

2. Three options will be established for admission to the Program:

a) Students who pass the entrance examination will be placed in the regular program (first year).

Candidates who do not pass the entrance examination and demonstrate musical ability must take from three to twelve credits in the preparatory component in accordance with their level of performance.

**Graduation Requirements**

In order to complete the Bachelor of Arts Degree in Popular Music, students must meet the requirements established by the University for the Baccalaureate Degrees complete a total of 129 academic credits that include:

1. The General Education. Requirements.
2. The Popular Music major requirements.
3. Present a 45 minute Graduation Recital recorded in audio and video.

**Preparatory Component**

MUSI	0531, 0532	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.

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</u> credits
Total	129

**General Education Requirements - 48 credits**

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

### Major Requirements - 78 credits

MUSI	1122, 1123, 1124	Comparative History of Music I, II, III	9
MUSI	1323, 1324, 2326, 2327	Instrumental Ensemble I, II, III, IV*	
	or		
MUSI	1333, 1334, 2335, 2336	Choral Ensemble I, II, III, IV*	8
MUSI	1531, 1532	Theory and Sight Singing I, II	6
MUSI	1563, 1564	Group Piano I, II**	
	or		
MUSI	1661, 1662	Group Guitar I, II**	4
MUSI	2000	Digital Musical Notation	3
MUSI	2531, 2532, 2533	Improvisation I, II, III	9
MUSI	2623, 2624, 2625	Harmony I, II, III	9
MUSI	3901	Composition I	3
MUSI	4724	Arrangements I	3
MUSI	4734	Recording (M.I.D.I. Room) I	3
MUSI	4803	Graduation Concert	1

\*These may be combined. The total must be eight (8) credits

\*\*Choose between Guitar and Piano.

NOTE: Sixty (60) credits plus 18 credits that students will take in the performance of their principal instrument.

MUSI	1501, 1502, 2503, 2504, 3505, 3506	Flute
MUSI	1511, 1512, 2513, 2514, 3515, 3516	Piano
MUSI	1521, 1522, 2523, 2524, 3525, 3526	Puerto Rican Cuatro
MUSI	1541, 1542, 2543, 2544, 3545, 3546	Saxophone
MUSI	1551, 1552, 2553, 2554, 3555, 3556	Trumpet
MUSI	1571, 1572, 2573, 2574, 3575, 3576	Trombone
MUSI	1581, 1582, 2583, 2584, 3585, 3586	Bass
MUSI	1591, 1592, 2593, 2594, 3595, 3596	Guitar
MUSI	1601, 1602, 2603, 2604, 3605, 3606	Drums
MUSI	1611, 1612, 2613, 2614, 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 Scenic Arts

The minor in Scenic 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 Scenic Arts - 18 credits

The student must approve the following 12 credits:

ARTS	1001	Theater Workshop	2
ARTS	1002	Theater Workshop	2
ARTS	2001	Theater Workshop	2
ARTS	2002	Theater Workshop	2
ARTS	3001	Theater Workshop	2
ARTS	3002	Theater Workshop	2

Students must approve two (2) of the following courses (6 credits); one of these must be in level 4000.

ARTS	1500	Acting	3
ARTS	1700	Appreciation of the Theater	3
ARTS	2500	Puppet Theater	3
ARTS	3505	Puerto Rican Theater	3
ARTS	4013	Stage Direction and Theatrical Staging	3
ARTS	4500	Stagecraft	3

## Psychology (B.A.)

The Program of studies for the Bachelor of Arts Degree in Psychology is designed to provide the student with the basic knowledge and skills needed to make a start in the psychology field. The curriculum has a particular emphasis on developing the student's capacity for critical judgment and providing a base to continue graduate studies.

The Aguadilla, Arecibo, Fajardo, Metropolitan and San Germán campuses are authorized to offer this Program. In addition, the Ponce Campus is authorized to offer this Program through distance learning.

## REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN PSYCHOLOGY

General Education Requirements	48 credits
Major Requirements	51 credits
Prescribed Distributive Requirements	6 credits
Elective Courses	<u>12</u> credits
Total	117

### General Education Requirements - 48 credits

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

### Major Requirements - 51 credits

PSYC	1051	General Psychology I	3
PSYC	1052	General Psychology II	3
PSYC	2000	Writing in Psychology	1
PSYC	3001	Statistical Methods I	3
PSYC	3002	Statistical Methods II	3
PSYC	3100	Learning	3
PSYC	3113	Physiological Psychology	3
PSYC	3300	Social Psychology	3
PSYC	4000	Fundamentals of the Psychological Interview	3
PSYC	4103	Community Intervention	3
PSYC	4113	Contemporary Theories	3
PSYC	4200	Principles of Psychological Testing	3
PSYC	4213	Psychopathology	3
PSYC	4234	Psychology of Personality	3
PSYC	4600	Experimental Psychology	4
ANTH	2030	Social Anthropology	3
BIOL	1006	Fundamentals of Biology	4

### Prescribed Distributive Requirements - 6 credits

Six credits from the following courses.

PSYC	3220	Developmental Psychology	3
PSYC	3268	Introduction to Counseling and Psychotherapy	3
PSYC	3313	Industrial/Organizational Psychology	3
PSYC	3315	Introduction to School Psychology	3
PSYC	4100	Behavior Modification	3
PSYC	4210	Cognitive Psychology	3
PSYC	4313	Organizational Development	3
PSYC	4520	Crisis Intervention	3
PSYC	4970	Seminar	3
SOWO	3566	Women in Society	3
		or	
SOCI	4220	Gender, Society and Culture	3
SOWO	4873	Social 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 (B.S.)**

The Bachelor of Science in Radiological Sciences offers a comprehensive educational program for students who have an Associate Degree in Radiological Technology and for certified radiological technologists. The main purpose of the Program is the development of clinical competence in advanced modalities of diagnostic images: Computerized Tomography and Magnetic Resonance.

The Program is designed to allow the student to develop personally and professionally through participation in a variety of didactic and clinical learning experiences. These include cognitive, psychomotor and affective components with scientific knowledge based on concepts and principles of the natural and social sciences, and the humanities; in addition to other sciences related to the discipline.

As a health related science, radiological science is deals with patient health and well-being through diagnosis and treatment of diseases by means of the creation of medical images using X-rays, ultrasound and nuclear magnetic resonance. The specialists in diagnostic images work in collaboration with radiologists and other medical specialists.

It is expected that graduates of this Program be prepared to work in different scenarios such as: general and specialized hospitals, medical, offices, specialized clinics, educational institutions, public health institutions, companies dealing in medical equipment, in industry, and others.

### **Admission Requirements**

Candidates aspiring to enter this Program must meet the following requirements:

1. Submit evidence of having completed the graduation requirements for the Associate Degree in Radiological Technology in a properly accredited institution.
2. Have a minimum grade point average of 2.50
3. Meet the admission requirements established in the General Catalog of Inter American University of Puerto Rico.
4. Present two letters of recommendation from professors who know you as a student.
5. Be interviewed by the admission committee of and/or the Program coordinator.
6. Present a current copy of the following documents:
  - o Health Certificate
  - o Certificate of Immunization against Hepatitis B
  - o Certificate of no Criminal Record provided by the Police of Puerto Rico

In addition to the above admission requirements, candidates who come from other institutions will be evaluated according to the curricular program of that institution and the necessary course adjustments will be determined.

### **Retention Requirements**

1. Meet the academic progress norms established in Inter American University's General Catalog.
2. Pass all major courses with minimum grade of C.

3. All students failing in the same major course on two occasions will be placed on probation in the Bachelor's Program in Radiological Sciences. If they fail the same course during the probationary period, they will be dropped from the Program.
4. Once students are assigned to a clinical center, they must attend according to the schedule established by the professor and Program coordinator.

### Graduation Requirements

1. Meet the graduation requirements established in Inter American University's General Catalog.
2. Pass all major courses with a minimum grade of C.

The 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		85 credits
General Education Requirements at the Bachelor's Level		18 credits
Major Requirements		<u>30</u> credits
	Total	133

### General Education Requirements - 18 credits

In order to receive the Bachelor of Science Degree in Radiological Sciences, students must take 18 credits in General Education in addition to the 24 credits approved for the Associate Degree. These 18 credits will be taken as follows: in the Philosophical and Esthetic Thought category, course GEPE 4040 and a course from among 2020, 3010 and 3020; in the Basic Skills in Spanish category, course GESP 2203; in the Basic Skills in English category, course GEEN 1103; in the Scientific and Technological Context category, either course GEST 2020 or 3030; in the Historical and Social Context category a course from among GEHS 3020, 3040 and 4030.

### Major Requirements - 30 credits

CTMR	3030	Physical Principles of Computerized Tomography and Magnetic Resonance	3
CTMR	3040	Procedures and Images I	3
CTMR	3041	Procedures and Images II	3
CTMR	4020	Procedures and Images III	3
CTMR	4021	Procedures and Images IV	3
CTMR	4911	Internship I	3
CTMR	4912	Internship II	3
CTMR	4913	Internship III	3
RASC	4000	Research in Radiological Sciences	3
RASC	4030	Professional Seminar	3

## Radiological Technology (A.A.S., B.S.)

### Associate Program

This Program was created to prepare radiological technologists that make up the health professionals responsible for performing radiographic procedures through the use of radiological diagnostic equipment.

The mission of the Associate Degree in 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 Evaluación de Admisión 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, Ponce, and San Germán, campuses are authorized to offer this Program.

The Program of the San Germán Campus is accredited by the national accrediting board, Joint Review Committee on Education in Radiologic Technology (JRCERT).

## REQUIREMENTS FOR THE ASSOCIATE DEGREE IN APPLIED SCIENCES IN RADIOLOGICAL TECHNOLOGY

General Education Requirements	24 credits
Major Requirements	57 credits
Related Course Requirements	<u>3</u> credits
Total	84

### General Education Requirements - 24 credits

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

### Major Requirements - 57 credits

RATE	1100	Radiologic Protection	1
RATE	1101	Human Biology I	4
RATE	1102	Human Biology 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	3030	Human Formation in the Contemporary Society	3
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## Bachelor's Program

This Program is designed develop students academically in the areas of radiological imaging and provides students the option of obtaining a diploma of Associate Degree in Applied Sciences in Radiological Technology upon completing the 84 required credits for the major. In addition, it aims to offer professionals who have obtained an Associate Degree in Radiological Technology from an accredited university, the opportunity to continue studies leading to the Bachelor of Science Degree in Radiological Technology with a major in Mammography and Angiography. The practice courses will be offered in different structured scenarios in affiliated and certified health

institutions where the student will develop the required knowledge, skills and competencies to offer a quality service.

The Program aims to prepare health professionals capable of applying the knowledge of the components of mammography and angiography equipment to the identification of the diverse pathologies related to the study area. This professional will be able to make structured radiological studies in the areas of mammography and angiography that facilitate the analysis and interpretation of the results so that patient diagnoses can be made with a greater degree of precision. In addition, they will demonstrate a respectful attitude towards the patient by observing the professional ethics code and the Confidentiality Law (HIPAA).

Graduates from the Program will have a high sense of humanism, sensitivity and commitment to the profession, and will possess traits that will be shown by means of their effective work with the health team that intervenes in the diagnosis and treatment of diseases.

The Radiological Diagnosis Technology profession requires a license granted by the Examining Board of Radiology Technicians, after satisfactory approval of a revalidation examination. As a result of the formative process of the graduates of the Program, they will be capable of taking and to approving the evaluation required to exercise the profession.

### **Admission Requirements**

Students who aspire to the Bachelor of Science Degree in Radiological Technology with a major in Mammography and Angiography must fulfill the following general admission requirements of the Program:

1. Submit a completed admissions application in or before the date stipulated by the Program.
2. Present an official and updated transcript of credits of recent studies.
3. Have a general grade index of 2.50 more.
4. Submit two (2) letters of recommendation from professors who know you as a student.
5. Be interviewed by the Admissions Committee of the Program.
6. After admission, submit:
  - a) two (2) photos 2 x 2
  - b) a health certificate
  - c) proof of vaccination against Hepatitis B
  - d) a certificate of no criminal record

### **Transfer Requirements**

1. Meet all admission requirements for students transferring from another University campus or transfers established in the University's General Catalog and by the corresponding Campus.
2. Both the Associate Director of Sciences and Technology and the Academic Coordinator of the Program must authorize all transfers or combined registration.
3. Have a minimum average of 2.50 in the major courses and have a certificate or an Associate Degree in Radiological Technology from a recognized and accredited Higher Education institution. If more than five (5) years have passed since finishing the Associate Degree, an active license, as Radiological Technologist must be presented.

### **Graduation Requirements**

To complete the Bachelor of Science Degree in Radiological Technology with a major in Mammography and Angiography the student must:

1. Have passed major courses with a minimum average of 2.50.
2. Have obtained a minimum overall grade index of 2.00 points.

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

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN RADIOLOGICAL TECHNOLOGY  
WITH A MAJOR IN MAMMOGRAPHY AND ANGIOGRAPHY

General Education Requirements	45 credits
Core Course Requirements	12 credits
Major Requirements	69 credits
Elective Courses	<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 (B.B.A.)

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.

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</u> credits
Total	124

#### General Education Requirements - 48 credits

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

#### Core Course Requirements - 35 credits

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

### Associate Program

The Associate of Arts Degree in Studies in Religion aims to offer a degree that permits students to move to the Bachelor of Arts Degree to form facilitators capable of offering ecumenical instruction in harmony with the particular needs of society.

The Metropolitan Campus is authorized to offer this Program in the presential mode and through distance 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</u> credits
Total	63

### General Education Requirements - 24 credits

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

The Fajardo and Metropolitan Campuses are authorized to offer this Program. The Metropolitan Campus is also authorized to offer this Program through distance learning.

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN STUDIES IN RELIGION

General Education Requirements	48 credits
Major Requirements	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 (A.A.S)

The course of studies for the Associate in Applied Science Degree in Restaurant and Food Services Administration is designed for people who wish to acquire skills in dealing with food services. The Program exposes students to principles, concepts and practices that are essential in the food services industry. This Program provides the opportunity for people who already have experience in administration of food services to complete an academic degree and be promoted to supervisory positions. The program aims to prepare graduates for positions in areas such as food service, production, sales and marketing, and in human resources management and supervision. In addition, graduates will have become familiar with different food services to enable them to apply their administrative knowledge to each of them.

The Aguadilla Campus is authorized to offer this Program.

### REQUIREMENTS OF THE ASSOCIATE IN APPLIED SCIENCE DEGREE IN RESTAURANT AND FOOD SERVICES ADMINISTRATION

General Education Requirements	24 credits
Major Requirements	<u>43</u> credits
Total	67

#### General Education Requirements - 24 credits

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

#### Major Requirements - 43 credits

FSMT 1210	Sanitation and Security in Food Services	1
FSMT 1220	Service Theories and Practices	2
FSMT 2101	Purchasing Systems and Inventory and Storage Control	2
FSMT 2104	Buffet and Catering Services	3
FSMT 2203	Restaurant Management	3
FSMT 2915	Internship in Restaurant Management	3
ACCT 1161	Introduction to Financial Accounting	4
BADM 1900	Fundamentals of Management	3
ENTR 2200	Fundamentals of Entrepreneurship	3
HMGY 1060	Introduction to Marketing in the Hotel Industry	3
HMGY 3200	Human Resources Management in the Hotel Industry	3
HMGY 3301	Food and Beverage Management I	3
HMGY 3302	Food and Beverage Management II	3
TURI 1020	Fundamentals of Tourism	3
TURI 1040	First Aid	1
TURI 2000	Laws and Tourism	3

## Sales (A.A.S.)

The Associate of Applied Science Degree in Sales aims to study the sales systems and their basic functions geared to achieve their objectives, contact clients and develop presentations on sales. The Program helps the student perform efficiently and effectively in the world of work.

The Aguadilla and San Germán campuses are authorized to offer this Program. In addition, the Aguadilla 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</u> credits
Total	61

#### General Education Requirements - 24 credits

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

#### 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 (B.A.)

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 distance 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	36 credits
Elective Courses	<u>14 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 (B.A.)**

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 standards of the Council on Social Work Education (CSWE), of 2008 that will allow students at the generalist level to:

1. Identify as a professional social worker and conduct oneself accordingly.
2. Apply social work ethical principles to guide professional practice.
3. Apply critical thinking to inform and communicate professional judgments.
4. Engage diversity and difference in practice.
5. Advance human rights and social and economic justice.
6. Engage in research-informed practice and practice-informed research.
7. Apply knowledge of human behavior and the social environment.
8. Engage in policy practice to advance social and economic well-being and to deliver effective social work services.
9. Respond to contexts that shape practice.
10. Engage, assess, intervene, and evaluate 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, transfer students must:

1. Fill the Social Work Program Admission Form.
2. Have a minimum general grade point average of 2.25 of the campus or the university of origin.
3. Have passed course SOWO 2503 Introduction to Social Work or its equivalent with a minimum grade of B.

### **Practice Requirements**

To register in the courses 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

### **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.

- Have approved the other courses that make up the Major Requirements with a minimum grade of C.

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

The Program of the Arecibo and Metropolitan campuses is accredited by the Council on Social Work Education, (<http://www.cswe.org>).

#### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SOCIAL WORK

General Education Requirements	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 five (45) credits are required as explained in the section “General Education Requirements for Bachelors’ Degrees.” Besides taking course GEHS 2010, the students will only take three additional credits in the category Historical and Social Context. These credits will be in course GEHS 3020.

#### 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, 3462	Individuals and Their Social Environment I, II	6
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, 4912	Practice Experience in Generalist Social Work I, II	8
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, 4952	Seminar in Education Practice I, II	6
SOWO	497_	Seminar	3

#### 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

## Sociology (B.A.)

The objective of the Sociology Program is to develop in the student an understanding of the collective behavior of human beings. The courses cover a variety of social groups such as social classes, the family and the community. Human beings are also seen in different contexts: rural society, slums, the suburb, the modern city and the international community. The curriculum also covers behavioral themes such as population growth, migration, the management of organizations, crime and delinquency. The courses are built on an empirical and interpretative foundation designed to familiarize the students with sociological theories and research methods.

The Program offers the Bachelor of Arts Degree in Sociology and is designed to provide a basis for graduate studies in sociology and anthropology and to prepare its students to work professionally with groups and individuals.

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

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SOCIOLOGY

General Education Requirements	48 credits
Core Course Requirements	37 credits
Major Requirements	18 credits
Prescribed Distributive Requirements	9 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.” In the Historical and Social Context category the students of this Program will take GEHS 2020 Global Vision of Economy and GEHS 4030 Modern and Contemporary Western Civilization.

#### Core Course Requirements - 37 credits

SOCI	1030	Introduction to Sociology	3
SOCI	2020	Structures, Continuity and Change	3
SOCI	3753	Social Problems of Puerto Rico	3
SOCI	3900	History of Social Thought	3
SOCI	4050	Sociological Theories	3
SOCI	4800	Sociological Research	4
SOCI	497 -	Seminar	3
ANTH	1040	Introduction to Anthropology	3
ANTH	2040	Culture and Environment	3
PSYC	1051	General Psychology I	3
PSYC	3001	Statistical Methods I	3
POLS	1011	Introduction to Political Science	3

#### Major Requirements - 18 credits

At least one of the following majors is required:

##### • GENERAL SOCIOLOGY

Students will take 6 courses from the following:

SOCI	2040	Family and Society	3
SOCI	2050	Urban Society and its Transformation	3

SOCI	2070	Civil Society and Self-Management	3
SOCI	3010	Diversity and Marginality	3
SOCI	3645	Demography	3
SOCI	4600	Human Rights and Society	3
ANTH	2060	Language and Culture	3
ANTH/SOCI		Course at level 4000	3

### • GENERAL ANTHROPOLOGY

Students will 6 courses from the following:

ANTH	2060	Language and Culture	3
ANTH	3010	Ethnography and Ethnology	3
ANTH	3020	Anthropology and Religion	3
ANTH	3050	Studies of Popular Culture	3
ANTH	3500	Archeology	3
ANTH	3600	Physical Anthropology and Human Evolution	3
ANTH	4020	Health Anthropology	3
ANTH	4700	Caribbean Cultures	3

### • CRIMINAL JUSTICE

Students will take 6 courses from the following:

SOCI	2040	Family and Society	3
SOCI	2060	Violence and Criminal Conduct	3
SOCI	2080	Criminal Justice System	3
SOCI	3010	Diversity and Marginality	3
SOCI	3560	Rehabilitation Systems for Delinquents	3
SOCI	4060	Criminology and Delinquency	3
SOCI	4600	Human Rights and Society	3
SOCI	4910	Internship	3

### Prescribed Distributive Requirements - 9 credits

Student will select nine (9) credits from the following courses:

SOCI	3070	Community and Socioeconomic Development	3
SOCI	3570	Nonprofit Organizations	3
SOCI	4220	Gender, Society and Culture	3
SOCI	4817	History of Social Welfare	3
SOCI	4870	Management of Communitarian Projects	3
SOCI	497_	Seminar	3
ANTH	3020	Anthropology and Religion	3
ANTH	3050	Studies of Popular Culture	3
ANTH	3500	Archeology	3

### Minor in Archeology

The minor in Archeology exposes students to the techniques, the methods and the practices of archeology from a scientific perspective. They will learn excavation techniques, as well as the suitable handling of the tools used in the identification, the preservation and the conservation of the archaeological deposits and the artifacts found in these. They will comply with the protection and conservation norms of the cultural and historical patrimony and will demonstrate an ethical conduct in harmony in compliance with the national and international laws governing this profession.

The Metropolitan Campus is authorized to offer this minor.

**Requirements for the Minor in Archeology - 22 credits**

ACHA	3501	Archaeological Materials I	3
ACHA	3502	Archaeological Materials II	3
ACHA	4000	Cultural Resources Management and Public Archeology	3
ACHA	4010	Field Archeology	4
ANTH	1040	Introduction to Anthropology	3
ANTH	3500	Archeology	3
ANTH	3600	Physical Anthropology and Human Evolution	3

**Minor in Communitarian Social Development**

The Metropolitan Campus is authorized to offer this minor.

**Requirements for the Minor in Communitarian Social Development - 18 credits**

SOCI	1030	Introduction to Sociology	3
SOCI	2070	Civil Society and Self-Management	3
SOCI	3010	Diversity and Marginality	3
SOCI	3070	Community and Socioeconomic Development	3
SOCI	3570	Nonprofit Organizations	3
SOCI	4870	Management of Communitarian Projects	3

**Spanish (B.A.)**

The curriculum in Spanish is designed to develop student skills in the oral and written language as well as to provide general knowledge of the Spanish, Spanish-American, and Puerto Rican literature in the historical and philological context of the Spanish language. The mastery and fluency in handling the vernacular language is an unavoidable commitment for the Spanish program and humanistic training program and for the Institution itself.

With the academic preparation provided, the Program graduates will be able to compete in the work force in different types of jobs that require fluidity and good handling of the Spanish language. It also prepares them to continue graduate studies.

A Bachelor of Arts Degree in Spanish is offered. The Institution offers three related minors.

The Metropolitan Campus is authorized to offer this Program.

**REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN SPANISH**

General Education Requirements	48 credits
Major Requirements	39 credits
Prescribed Distributive Requirements	15 to 17 credits
Elective Courses	<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

## Speech and Language Therapy (B.S.)

The Bachelor of Science Program in Speech and Language Therapy aims to prepare competent professionals who can collaborate in taking care of the needs of children and young people of Puerto Rico with communication disorders. The professional graduates of the Program will be able to offer therapeutic services to children and young

people between 0-21 years of age under the supervision of a licensed Speech and Language Pathologist, as established by Law 77 which regulates the practice of professionals of Speech and Language Therapy, Speech Pathology, and Language and Audiology in Puerto Rico. Graduates of this Program will be capable of performing tasks of evaluation and prevention of communication disorders.

In addition to the admission requirements in this Catalog, students of this Program must present evidence of graduation from an accredited high school or its equivalent with a minimum grade point index of 2.50 or its equivalent.

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

#### REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN SPEECH AND LANGUAGE THERAPY

General Education Requirements	48 credits
Major Requirements	64 credits
Prescribed Distributive Requirements	<u>9</u> credits
Total	121

#### General Education Requirements - 48 credits

Forty and eight (48) credits are required as explained in the section “General Education Requirements for Bachelors’ Degrees”. Students of this Program will take course GEST 2020-Science, Technology and Environment in the Scientific and Technological Context category and course GEHS 3030- Human Formation in Contemporary Society in the Historical and Social Context category. They will take course GEMA 1200 in the Basic Skills in Mathematics category.

#### Major Requirements - 64 credits

Students will take sixty and four (64) credits from the following courses

SPTH	2020	Anatomy y Physiology of Speech and Language	3
SPTH	2021	Normal Development of Language	3
SPTH	2022	Introduction to Audiology	3
SPTH	2023	Clinical and Administrative Procedures in the Speech and Language Therapy Profession	3
SPTH	2024	Use of Technology in the Practice of Speech and Language Therapy	3
SPTH	3000	Development of Speech: Normal and Pathological Processes	3
SPTH	3010	Fluency Disorders in Children	3
SPTH	3015	Voice Disorders in Children	3
SPTH	3020	Identification and Treatment of Children with Oral Language Disorders	3
SPTH	3021	Identification and Treatment of Children with Written Language Disorders	3
SPTH	3110	Cleft Palate and Craniofacial Anomalies	3
SPTH	3120	Intervention with Children with Hearing Impairments	3
SPTH	3130	Psycho-social and Cognitive Conditions Associated with Speech and Language Problems	3
SPTH	3140	Early Intervention	3
SPTH	4110	Augmentative and Alternate Aid for Communication in Children	3
SPTH	4120	Sign Language	3
SPTH	4130	Treatment of Children with Severe Conditions	3
SPTH	4135	Dysphagia in Children	3
SPTH	4140	Contemporary Topics in Speech and Language Therapy	3
SPTH	4912	Clinical Practicum I	3
SPTH	4913	Clinical Practicum II	4

### Prescribed Distributive Requirements - 9 credits

Select nine (9) credits from the following courses:

EDUC	2031	Developmental Psychology	3
EDUC	2032	Learning Psychology	3
EDUC	2870	The Exceptional Student Population	4
EDUC	2905	Nature and Needs of the Students with Mental Retardation and Emotional Disturbances	3
EDUC	2906	Nature and Needs of Students with Specific Learning Problems and ADHD	3
EDUC	3290	Classroom Management	3

## Tourism (A.S. and B.B.A.)

### Associate Program

The Associate of Science Degree in Tourism with a major in Tourist 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 Tourist Guide license from the Puerto Rico Tourism Company.

### Requirements for Admission to the Internship

In order to be admitted to the Tourist 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 Barranquitas and Fajardo campuses are authorized to offer this Program.

### REQUIREMENTS FOR THE ASSOCIATE OF SCIENCE DEGREE IN TOURISM WITH A MAJOR IN TOURIST GUIDE

General Education Requirements	24 credits
Core Course Requirements	27 credits
Major Requirements	<u>15 credits</u>
Total	66

### General Education Requirements - 24 credits

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

### Core Course Requirements - 27 credits

TURI	1020	Fundamentals of Tourism	3
TURI	1030	Travel Agencies and Computerized Reservation Systems	2
TURI	1040	First Aid	1
TURI	2000	The Law and Tourism	3
TURI	2010	The Reception Department	2
TURI	2030	Intercultural Communication	3
TURI	2060	Tourist Marketing	3
BADM	1900	Fundamentals of Management	3
ACCT	1161	Introduction to Financial Accounting	4
ENGL	2054	Speech Workshop	
		or	
SPAN	2451	Spanish as a Foreign Language	3

### Major Requirements - 15 credits

#### Tourist Guide (A.S.)

##### Tourist Guide - 15 credits

TURI	1050	The Tourist Guide	3
TURI	2020	Geography and Tourism in Puerto Rico	3
TURI	2040	Planning and Developing Excursions	3
TURI	2050	Geography and World Tourism	3
TURI	2913	Internship in Tourism Guide	3

## Bachelor's Program

The Bachelor of Business Administration Degree with a a major in Tourism Management will develop professionals capable of administering, developing and serving in tourist destinations, such as, zones, areas, towns and communities in tourist areas and their dependencies.

This program enables students to apply the concepts, principles and techniques required for the effective administration of tourism businesses. The specialization in tourism administration is for those students who wish to develop professionally in tourism areas, such as; government, private companies, their own businesses and tourist facilities like hotels, restaurants and others. They will be able to work in areas of consulting, planning and zoning of tourism areas, as well as in the hospitality industry, trips and excursions.

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

This Program is certified by the UNWTO of the World Tourism Organization (<http://themis.unwto.org>).

The Fajardo Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE WITH A MAJOR IN TOURISM MANAGEMENT

General Education Requirements	48 credits
Core Course Requirements	38 credits
Major Requirements	36 credits
Elective Courses	<u>3</u> credits
Total	125

### General Education Requirements - 48 credits

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

### Core Course Requirements - 38 credits

ACCT	1161	Introduction to Financial Accounting	4
ACCT	1162	Introduction to Managerial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3900	Information Systems in Businesses	3
BADM	4300	Managerial Economics	3
FINA	2100	Managerial Finance	3
MAEC	2140	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 Workshop in Spanish or	3
OMSY	3040	Business Communication Workshop in English	3

### Tourism Management (B.B.A.)

#### Requirements for the Major in Tourism Management - 36 credits

TURI	1020	Fundamentals of Tourism	3
TURI	1200	Tourist Quality and Services	3
TURI	1900	Hotel Management	3
TURI	2000	Laws and Tourism	3
TURI	2060	Tourist Marketing	3
TURI	2200	Culture and Tourist Destinations of Puerto Rico	3
TURI	3010	Ecotourism and Sustainable Tourism	3
TURI	3210	Planning and Tourist Development	3
TURI	3220	Trip Reservations Systems	3
TURI	3230	Accommodations Department Administration	3
TURI	4400	Administration and Organization of Groups and Conventions	3
TURI	4910	Internship in Tourism Administration	3

Credit may be granted for the internship (TURI 4910) to students who have had a satisfactory work experience and who apply for it in writing to the director of the academic department. This credit will be subject to the following:

1. Students have been working full-time in a company for a minimum of two consecutive years within the three-year period immediately prior to the date of their request.
2. Students submit a certification and letter from their employer or the Human Resources Office of their place of employment which specifies:
  - a. Years of experience
  - b. Period of the time employed
  - c. Position or positions held
  - d. Job description
  - e. Copies of evaluations received
  - f. Any other evidence of their professional performance during their employment.
3. Students pay 50% of the tuition costs of the internship course for which they are requesting credit.

The experience recognized by the University corresponds to the requirement for the degree that the student hopes to obtain from the Institution.

## Tourism in Tourist Administrative Assistant (A.S.)

The Associate of Science Degree in Tourism with a major in Tourist Administrative Assistant studies principles, concepts and practice of the tourism industry and related areas. This degree is designed for individuals capable of communicating in English and Spanish for those with experience in this field who aspire to positions at a supervisory level.

This Program aims to develop skills in the areas of: reception, reservations, human resources, accounting and management in diverse hotels and related industries, depending on the students' experiences.

### Requirements for Admission to the Internship

In order to be admitted to the Administrative Assistant Internship, students must have a minimum grade point average of 2.50 in the core courses and major courses and must have authorization from the Department Director.

### Graduation Requirements:

In addition to the regulations established in the General Catalog, students should have a minimum grade point average of 2.5 in the major.

The Barranquitas Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE ASSOCIATE OF SCIENCE DEGREE IN TOURIST ADMINISTRATIVE ASSISTANT

General Education Requirements	24 credits
Core Course Requirements	27 credits
Major Requirements	<u>15 credits</u>
Total	66

### General Education Requirements - 24 credits

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

### Core Course Requirements - 27 credits

TURI 1020	Fundamentals of Tourism	3
TURI 1030	Travel Agencies and Computerized Reservation Systems	2
TURI 1040	First Aid	1
TURI 2000	The Law and Tourism	3
TURI 2010	The Reception Department	2
TURI 2030	Intercultural Communication	3
TURI 2060	Tourist Marketing	3
BADM 1900	Fundamentals of Management	3
ACCT 1161	Introduction to Financial Accounting	4
ENGL 2054	Speech Workshop	
	or	
SPAN 2451	Spanish as a Foreign Language	3

### Major Requirements - 15 credits

TURI	2400	Housekeeping Management	3
TURI	2600	Physical Facilities Management	3
TURI	2910	Internship: Tourist Administrative Assistant	3
TURI	3200	Human Resources Management in the Hotel Industry	3
TURI	3300	Food and Services Management	3

## Training and Sports Management (B.A.)

The Bachelor of Arts program in Training and Sports Management aims to train professionals to administer, market and develop sports training programs. It provides the tools to successfully establish and administer a sports business. Likewise, it prepares those interested in the development of training programs with scientific base. This multidisciplinary program integrates the areas of Physical Education, Business Administration and Marketing.

The Metropolitan Campus is authorized to offer this Program.

### REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN TRAINING AND SPORTS MANAGEMENT

General Education Requirements	48 credits
Major Requirements	57 credits
Prescribed Distributive Courses	6 credits
Elective Courses	<u>9</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 - 57 credits

ACCT	1161	Introduction to Financial Accounting	4
BADM	1900	Fundamentals of Management	3
BADM	3300	Communication in Management	3
BADM	3330	Human Resource Management	3
BADM	3490	Supervision	3
BADM	4340	Protective Labor Legislation	3
ENTR	2200	Fundamentals of Entrepreneurship	3
HPER	2320	First Aid and Personal Safety for Children, Youth and Adults	2
HPER	3040	Legal Foundations in Sports	3
HPER	3270	Anatomy and Kinesiology	3
HPER	3480	Nutrition for Sports Training	3
HPER	4170	Physiology of Human Movement	3
HPER	4301	Sports Training Methodology I	3
HPER	4302	Sports Training Methodology II	3
HPER	4308	Design of Exercise Programs	3
HPER	4444	Clinical Experiences in Training	3
SRIM	1020	Foundations of Sports and Recreation	3
SRIM	2300	Introduction to Sports Marketing	3
SRIM	3030	Development of Programming of Sport and Recreational Centers	3

**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

# Course Descriptions

## Courses in Accounting (ACCT)

### **ACCT 1161 INTRODUCTION TO FINANCIAL ACCOUNTING**

Introduction to accounting and its relation with the business environment. Study and application of the accounting system in services and retail companies. Financial statement presentation and its utility in decision making. Discussion of general aspects related to: internal control, assets, liabilities and capital structures. The use of technology is integrated.

4 credits

### **ACCT 1162 INTRODUCTION TO MANAGERIAL ACCOUNTING**

Introduction to the fundamentals of managerial accounting as part of the planning, decision making and cost control processes in a company. Construction of budgets and their use in the decision making process. The use of technology is integrated. Prerequisite: ACCT 1161.

4 credits

### **ACCT 2010 ELECTRONIC WORKSHEETS IN ACCOUNTING**

Practice and development at an intermediate and advanced level of the electronic worksheet that includes its three integral parts: spreadsheet, data management and graphs. Prerequisites: GEIC 1010, ACCT 1161.

3 credits

### **ACCT 2025 ANALYSIS OF FINANCIAL STATEMENTS**

Organization and presentation of business and personal financial statements. Application of the different computerized methods, techniques and programs used to analyze and compare financial statements. Includes the analysis and interpretation of financial ratios. The use of technology is integrated. Prerequisite: ACCT 1161.

3 credits

### **ACCT 2041 PUERTO RICO TAX SYSTEM FOR INDIVIDUALS**

Discussion of the dispositions of the Internal Revenue Code of Puerto Rico and the amendments related to individuals taxes including the preparation of the required forms. Study of the tax obligations imposed by state and federal laws to Puerto Rican employers and the legal responsibility of tax specialists. The use of technology is integrated. Prerequisite: ACCT 1161.

4 credits

### **ACCT 2042 TAX SYSTEM OF PUERTO RICO FOR CORPORATIONS, PARTNERSHIPS AND OTHER ENTITIES**

Discussion and application of the dispositions of the Internal Revenue Code of Puerto Rico and its amendments related to income taxes applicable to corporations, partnerships and other entities. Includes the study of excise taxes and municipal and property taxes. The use of technology is integrated. Prerequisite: ACCT 2041.

3 credits

### **ACCT 2055 COST ACCOUNTING I**

Application and analysis of cost accumulation using the job, procedural cost and activity based cost methods in order to plan, implement and control the operations of the company. The concepts of budget and standard cost will be included. The use of technology is integrated. Prerequisite: ACCT 1162.

4 credits

### **ACCT 2056 COST ACCOUNTING II**

Analysis, application and interpretation of cost information as the base for decision making. Includes the cost-volume-benefit relation, management control systems and investment decision. The use of technology is integrated. Prerequisite: ACCT 2055.

3 credits

**ACCT 2061 INTERMEDIATE ACCOUNTING I**

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 and recognition of income from 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 2070 INTERNATIONAL ACCOUNTING**

Application of the theories, norms and practices of international accounting. Includes the global accounting perspective, accounting systems for multinational companies, criteria and practices in the elaboration and presentation of financial information, financial analysis and exchange prices, among others. Prerequisite: ACCT 2062.

3 credits

**ACCT 2085 FEDERAL TAXES FOR INDIVIDUALS**

Discussion of the dispositions of the Federal Internal Revenue Code related to individual income taxes, including the preparation of required forms. Discussion of the special dispositions applicable to the residents of Puerto Rico. The use of technology is integrated. Prerequisite: ACCT 1161.

3 credits

**ACCT 3010 ACCOUNTING FOR COOPERATIVES**

Discussion of the philosophical aspects, structure, normative policy and statutory requirements. Emphasis on the study and application of administrative and accounting internal controls, and the accounting principles related to savings and credit cooperatives, consumption and others. Prerequisite: ACCT 2062.

3 credits

**ACCT 3030 COMPUTERIZED SYSTEMS APPLIED TO ACCOUNTING**

Application of the programs used in the processes of gathering, analyzing, interpreting, synthesizing and presenting accounting information. Prerequisites: GEIC 1010, ACCT 2062.

3 credits

**ACCT 3063 INTERMEDIATE ACCOUNTING III**

Discussion, analysis, interpretation and application of theoretical and practical aspects of accounting related to: earnings per share, corporate income taxes, pensions, rent, and changes in estimates and accounting principles. 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 3086 FEDERAL TAXES FOR CORPORATIONS, PARTERSHIPS AND OTHER ENTITIES**

Discussion and application of the dispositions of the Federal Internal Revenue Code related to income taxes applicable to corporations, partnerships and other entities, including the preparation of the required forms. The use of technology is integrated. Prerequisite: ACCT 2085.

3 credits

**ACCT 3095 BUSINESS ETHICS**

Review of the ethical aspects needed in the businesses world. Analysis of outstanding publications of Puerto Rican authors and authors from other countries on this subject. Analysis and application of cases. The codes of ethics of

different professionals will be identified and will be compared with the Code of Ethics for Accountants from the United States and other countries.

3 credits

#### **ACCT 3460 ACCOUNTING FOR NON PROFIT ORGANIZATIONS**

Discussion and practice of accounting for non profit organizations such as: government, hospitals, universities and other public and private entities. Includes the accounting for trusts and estates. The use of technology is integrated. Prerequisite: ACCT 2062.

3 credits

#### **ACCT 3470 ADVANCED ACCOUNTING**

Discussion and practice of the Equity Method for long term investments and of topics related to business mergers and consolidations. Includes accounting for partnerships and reorganization and liquidation of corporations. The use of technology is integrated. Prerequisite: ACCT 3063.

3 credits

#### **ACCT 4010 AUDITING AND ETHICS FOR ACCOUNTANTS**

Analysis and interpretation of the theory, norms, auditing process and the types of audit reports. Includes planning, internal control evaluation, the accounting system and the preparation of the auditor worksheets. In addition, the ethical principles of the accounting profession and the legal responsibility of accountant are examined. The use of technology is integrated. Prerequisite: ACCT 3063.

4 credits

#### **ACCT 4015 FORENSIC ACCOUNTING**

Analysis of the functions of the forensic accountant in investigations and audits. Study of the legal environment, solution of disputes, litigation services, fraud in financial statements and tax fraud. Prerequisite: ACCT 3063.

3 credits

#### **ACCT 4350 ACCOUNTING INFORMATION SYSTEMS AUDITING**

Design and evaluation of administrative controls aimed to safeguard business resources and maintain the integrity and reliability of information. Includes controls related to management, equipment, programming, input and output of information, data processing, and audit techniques.

3 credits

#### **ACCT 4912 ACCOUNTING INTERNSHIP**

Accounting practice in an organization or company under the supervision of a professor. Requires a minimum of 100 hours of practice. Prerequisite: Have passed a minimum of 30 credits in Accounting.

3 credits

#### **ACCT 4915 BUSINESS LAW FOR CPA CANDIDATES**

Areas of law examined in the Uniform Test for Certified Public Accountants, Contract laws in the United States, Uniform Business Law, special laws regulating business and legal work and responsibility of Certified Public Accountants. Prerequisites: ACCT 3460, 4010.

3 credits

#### **ACCT 4975 FEDERAL REGULATIONS**

Discussion and application of the commercial and tax law in the United States of America. Includes the professional and legal responsibility of the Certified Public Accountant. The CPA examination approach is used. Prerequisites: ACCT 3460, 3470, 3086, 4010.

3 credits

#### **ACCT 4976 FINANCIAL ACCOUNTING AND REPORTS SEMINAR**

Synthesis of the subjects studied in the financial, cost, advanced, and nonprofit organization accounting courses. The CPA examination approach is used. Prerequisites: ACCT 3460, 3470, 3086, 4010.

3 credits

**ACCT 4977 AUDIT AND SPECIALIZED SERVICES SEMINAR**

Synthesis of the audit procedures and the Generally Accepted Accounting Standards of the United States of America. Includes other standards for different attestation services offered by Certified Public Accountants. The CPA examination approach is used. Prerequisites: ACCT 3460, 3470, 3086, 4010.

3 credits

**ACCT 4978 BUSINESS ENVIRONMENT AND CONCEPTS SEMINAR**

Synthesis of the "Business Environment and Concepts" and its relation with transaction analysis for accounting purposes, audit and other services that Certified Public Accountants offer. The CPA examination approach is used. Prerequisites: ACCT 3460, 3470, 3086, 4010.

3 credits

**Courses in Airway Science (AWSC)****AWSC 2000 INTRODUCTION TO AERONAUTICS AND SPACE**

Basic knowledge of aviation. Includes the historical development and the contemporary trends of the aviation industry, as well as an introductory perspective to the aerospace industry.

3 credits

**AWSC 2115 THEORY OF PRIVATE PILOT**

Study of the principles of flight and the development of the skills required for the for Private Pilot Certification Examination of the Federal Aviation Administration (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.

5 credits

**AWSC 2116 FLIGHT LABORATORY FOR PRIVATE PILOT**

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 2200 GOVERNMENT & REGULATIONS IN AVIATION**

Study of agreements, conferences, reports, conventions, minutes and other related congressional laws related to the development and promotion of aviation in the United States and at the international level. Emphasis on the analysis of the principles of laws, statutes and agreements governing air transportation. Prerequisite: AWSC 2000.

3 credits

**AWSC 2300 AIRLINE PASSENGER SERVICES**

Study of the services provided to passengers at airports and airlines reservations departments. Includes computerized airline reservation systems. Prerequisite: AWSC 2000.

3 credits

**AWSC 3000 AERONAUTICAL LANGUAGE SKILLS**

Develop of the skills required to communicate effectively within the aviation environment on land and in the air. Emphasis is placed on the terminology and phraseology. Prerequisite: AWSC 2000.

3 credits

**AWSC 3140 INSTRUMENT RATING**

Develop the fundamental skills required for the Flight by Instrument Rating of the Federal Aviation Administration. Includes the use of flight instruments and regulations applicable to instrument flight and approach procedures, among others. Requires a minimum of 40 hours of flight and 50 hours of cross-country flight. It may require additional time in individualized theory or flight training depending on the mastery of the skills required for obtaining the certificate. The certification requirements are disseminated by the Federal Aviation Administration (FAA) and may change at the discretion of the agency. Prerequisites: AWSC 2115 and 2116 and Private Pilot Certificate.

3 credits

**AWSC 3160 COMMERCIAL PILOT**

Development of fundamental skills for commercial pilot certification by the Federal Aviation Administration. Requires a cumulative minimum of 250 hours of flight. It may require additional time in individualized theory or flight training depending on the mastery of the skills required for obtaining the certificate. The certification requirements are disseminated by the Federal Aviation Administration (FAA) and may change at the discretion of the agency. Prerequisites: AWSC 3140 and Private Pilot Certificate with Instruments Rating.

3 credits

**AWSC 3411 PRINCIPLES OF AIR TRAFFIC CONTROL**

Study of the basic foundations of air traffic control. Includes navigation, meteorology and Federal Air Regulations. Prerequisite: AWSC 2000.

3 credits

**AWSC 3600 FLIGHT SAFETY AND SECURITY**

Study of the Safety Management System (SMS) components. Emphasis on the analysis of air accidents. Analysis of the measures and security laws required at airports and airlines to counteract threats and other risks in air transportation. Prerequisite: AWSC 2000.

3 credits

**AWSC 4000 AIRPORT DEVELOPMENT AND OPERATIONS**

Analysis of the development of public airports, the importance of the master plan, management problems and the process of airport certification. Prerequisite: AWSC 3600.

3 credits

**AWSC 4055 MANAGEMENT OF AIR CARGO**

Analysis of the importance of air cargo services in national and international economy. Study of the management aspects related to this area: history, competition, tariffs, cargo facilities and equipment and future development of the industry. Prerequisite: AWSC 3600.

3 credits

**AWSC 4100 CAREER DEVELOPMENT FOR AEROSPACE PROFESSIONALS**

Study of professional standards, ethics, professional development and the certifications required in the aerospace industry. Emphasis on preparing the student for the transition to a career in aviation. Includes the development of skills for job placement in the industry, as well as the importance of professional organizations for professional development. It considers the expectations, goals and metrics used in the environment of each specialization. Prerequisite: AWSC 3600.

1 credit

**AWSC 4204 AIRLINE OPERATIONS**

Thorough study of the Federal Regulations of air transportation for airlines and commercial operators. Includes the functions and relations among the various major divisions of a typical airline. Prerequisite: AWSC 3160.

3 credits

**AWSC 4305 AVIATION METEOROLOGY**

Analysis of air masses and frontal systems, principles of atmospheric stability, and severe climatologic phenomena. Prerequisite: AWSC 2000.

3 credits

**AWSC 4310 HUMAN FACTORS FOR PILOTS**

Analysis of the relationship between human beings and flight environment. Includes human behavior and performance, perception, memory, learning, and ergonomics. Discussion of the implications of decision-making in risk management. Review of physiology and the relevant regulations according to medical certification standards for pilots. Aircraft technology, automation and human interaction with machine are illustrated. Prerequisite: AWSC 3160 and Commercial Pilot Single & Multi Engine Certificate.

3 credits

**AWSC 4320 ADVANCED AIRCRAFT SYSTEMS**

Analysis of the principles of aircraft systems operation. Prerequisite: AWSC 3160, PHYS 3001 and Commercial Pilot Single & Multi Engine Certificate.

3 credits

**AWSC 4340 APPLIED AERODYNAMICS**

Analysis of the principles of subsonic, transonic and supersonic aerodynamics. Prerequisite: AWSC 3160, PHYS 3001 and Commercial Pilot Single & Multi Engine Certificate.

3 credits

**AWSC 4360 FLIGHT INSTRUCTOR**

Development of the fundamentals of flight instruction. Application of methods of teaching and learning flight maneuvers and evaluation of certification of flight instructor (airplane), flight instructor instrument instructor and multimotor flight instructor. Requires a 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.

3 credits

**AWSC 4364 FLIGHT INSTRUCTOR-INSTRUMENTS**

Instruction, flight training and practice teaching that will allow the student to obtain the aeronautical skills and knowledge necessary to meet the requirements for a Flight Instructor Certificate with an Instrument Airplane Rating. Requires 10 hours in a single-engine airplane and five hours with instruments in addition to 45 hours of individualized theory with an instructor as preparation for taking the practical exam for flight instructor. It may require additional time in individualized theory or flight training depending on the mastery of the skills required for obtaining the certificate. The certification requirements are disseminated by the Federal Aviation Administration (FAA) and may change at the discretion of the agency. Prerequisites: AWSC 4360, Flight Instructor Certificate and Commercial Pilot Single & Multi Engine Certificate.

1 credit

**AWSC 4373 MULTI-ENGINE INSTRUCTOR**

Instruction, flight training and practice teaching that will allow the student to obtain the aeronautical skills and knowledge necessary to meet the requirements for a Flight Instructor Certificate with an Airplane Multiengine Rating. Requires 15 hours of flight with an instructor in a multiengine airplane and 30 hours of theory as preparation for the practical test of Multiengine Flight Instructor. It may require additional time in individualized theory or flight training depending on the mastery of the skills required for obtaining the certificate. The certification requirements are disseminated by the Federal Aviation Administration (FAA) and may change at the discretion of the agency. Prerequisites: AWSC 4360, Commercial Pilot Single & Multi Engine Certificate and Flight Instructor Certificate.

1 credit

**AWSC 4384 TRAINING TECHNIQUES FOR FLIGHT CREW (CRM TRAINING)**

Study of the means and systems available to mitigate human factor errors, such as the flight crew supervision (CRM), standardization and flight procedures. Requires 15 hours in a Flight Training Device (FTD). It may require additional time in an individualized theory or flight training device depending on the mastery of the skills required. Prerequisites: AWSC 3160 and Commercial Pilot Single & Multi Engine Certificate.

2 credits

**AWSC 4400 THEORY OF TRANSPORT AIRCRAFT**

Analysis of the specific systems of transport aircraft, limitations and normal and emergency procedures for aircraft used in this category. Prerequisites: AWSC 4320.

3 credits

**AWSC 4515 AIR TRAFFIC CONTROL I: TOWER OPERATION**

Development of radio communication and basic phraseology skills. Application of air traffic control rules, the duties of control tower operators, and airplane identification. Prerequisites: AWSC 3411 and have been admitted to the CTI program.

4 credits

**AWSC 4516 AIR TRAFFIC CONTROL II: RADAR OPERATION**

Development of radio communication and intermediate phraseology skills. Application of air traffic control rules, the procedures in operating radar, and the use of air navigation charts and other aeronautical publications. Prerequisite: AWSC 4515.

4 credits

**AWSC 4517 AIR TRAFFIC CONTROL III: EN-ROUTE AND IN TERMINALS**

Development of the radio communication and advanced phraseology skills. Application of advanced air traffic control rules and the duties of controllers. Prerequisite: AWSC 4516.

4 credits

**AWSC 4600 AIRLINE MANAGEMENT**

Analysis of management principles of the aviation industry. Includes planning, organization, leadership and controls used by airline management. Discussion of the airline organizational structures, functions and departments. Prerequisites: AWSC 3600 and BADM 4800.

3 credits

**AWSC 4650 FUNDAMENTALS OF AIRLINE FINANCE**

Introduction of the theoretical foundations of airline finances. Analysis of the financial statements that characterize these companies. Use of practical financial applications in matters of risk management and evaluation. Prerequisites: AWSC 4600 and FINA 2100.

3 credits

**AWSC 4660 FIXED BASED OPERATORS MANAGEMENT**

Application of the skills involved in the implementation of the successful operation of a general aviation business (FBO). Analysis of the evolution and importance of these businesses in the economy. Prerequisite: AWSC 4600.

3 credits

**AWSC 4670 INTERNATIONAL COMMERCE AND AVIATION**

Analysis of the characteristics, functions and structures of the international transport trade and aviation companies. Development of critical analysis in the areas related to aviation and commerce. Review and assessment of information on problematic areas essential to the development and maintenance of business aviation and international trade. Prerequisite: AWSC 4600.

3 credits

**AWSC 4680 AVIATION STRATEGIC MANAGEMENT**

Integration and application of administrative theories, experiences and knowledge acquired for the effective strategic management of an airline. Analysis of cases and management situations to be used for the application of strategic management principles and for the solution of organizational problems. Prerequisite: AWSC 4600.

3 credits

### **AWSC 4913 PRACTICUM IN AIR AGENCIES OPERATIONS**

Integration of the knowledge and skills acquired through experience in any work area in an airline, airport operation or general aviation business (FBO) supervised by a university professor. Requires 140 hours of practice. Prerequisite: must be graduation candidates.

3 credits

## **Courses in Anthropology (ANTH)**

The anthropology courses are an integral part of the major in sociology. The study of anthropology contributes to the intellectual formation of social sciences students, and integrates a holistic and comparative vision of the cultural task of the human being as a social being. Anthropology exposes the student to the range of cultural diversity, in time and space, thanks to its evolutionary approach that permits an appreciation of the development and acquisition processes of culture, as an adaptation mechanism of the human species. The origin and development of communities, the organization of primitive societies, traditional societies, the construction of cities; and human the social behavior in complex societies are studied. Anthropology analyzes the culture concept carefully, as a product of social organization, giving emphasis on the social structure and its chief manifestations, such as: the family, community, linguistics, religion and the arts. This is done by using a variety of scientific methods, especially ethnographic studies.

### **ANTH 1040 INTRODUCTION TO ANTHROPOLOGY**

Explanation of the origin and the biological and cultural evolution of humanity. Emphasis in anthropological sciences and their distinctive branches.

3 credits

### **ANTH 2030 SOCIAL ANTHROPOLOGY**

Description of the processes of acquisition of culture and language by the individual and his participation in structural terms in the five basic institutions that compose any socio-cultural system: economical, political, kinship, educational and religious.

3 credits

### **ANTH 2040 CULTURE AND ENVIRONMENT**

Description and analysis of the relationship between the cultural characteristics and the conditions of the habitat. Emphasis on the relations of production, the use of power and environmental diversity.

3 credits

### **ANTH 2060 LANGUAGE AND CULTURE**

Explanation of the relationship among language, society and culture. Identification of the universal characteristics of language as well as its structure from a descriptive and conceptual perspective. Presentation of the symbolic value of verbal and non-verbal language, by means of cross-cultural analysis.

3 credits

### **ANTH 3000 WORLD PREHISTORY**

Analysis of the development of culture from the most remote hominids to the moment at which history begins to be recorded. Contrast of the interaction between nature and culture, in time and space, and its manifestation in cultural diversity in different parts of the world.

3 credits

### **ANTH 3010 ETHNOGRAPHY AND ETHNOLOGY**

Use of methods and techniques applicable to ethnographic work as the basis and source of ethnological knowledge. Includes the review of historical development of the ethnographic schools and the development of ethnography in Puerto Rico. Exercises in field research will be carried out.

3 credits

**ANTH 3020 ANTHROPOLOGY AND RELIGION**

Review of the theories of the origin of religious beliefs, practices and rituals, the supernatural and magic. Emphasis in the social function of religion and its relation with culture.

3 credits

**ANTH 3050 STUDIES OF POPULAR CULTURE**

Review of the different levels of capacity, creation and expression of the culture with emphasis on the developments of popular culture. Examples of human creativity through the study of the folklore, patrimony, artisan production and the cultural vanguards in the business and tourist consumer system.

3 credits

**ANTH 3500 ARCHEOLOGY**

Review of culture through the archaeological legacy. Includes the application of methods and techniques of archaeological interpretation; relation between facts and theories; planning of excavation projects and preparation of reports. Field visits and study trips.

3 credits

**ANTH 3600 PHYSICAL ANTHROPOLOGY AND HUMAN EVOLUTION**

Comparative analysis of the human being and the primates with emphasis in biological evolution, from its ancestral forms. Analysis of genetic interrelation and the concept of race.

3 credits

**ANTH 4020 HEALTH ANTHROPOLOGY**

Analysis of the impact of culture on the notions regarding health and disease. Includes hygiene and nutrition. Comparison of the preventive and curative practices in traditional and modern societies and in the global system.

3 credits

**ANTH 4400 CULTURAL CHANGE**

Analysis of socio-cultural changes as product of internal or external changes. Includes the study of processes of change such as diffusion, innovation, acculturation and the theories of social change as cultural ecology.

3 credits

**ANTH 4700 CULTURES OF THE CARIBBEAN**

Comparative study of historical, social, linguistic and cultural formation of Caribbean societies. Includes the connection to the areas of the circum-Caribbean: Venezuela, Colombia, Mexico and others.

3 credits

**Courses in Arabic (ARAB)****ARAB 1001 BASIC ARABIC I**

Introduction to the phonological system of the language and the foundations of the writing system. Emphasis on oral production and the development of vocabulary for effective communication in daily life situations.

4 credits

**ARAB 1002 BASIC ARABIC II**

Development of the phonological system of the language and the foundations of the writing system. Emphasis on oral production, reading and the development of vocabulary for practical purposes. Cultural aspects will be learned through cocurricular activities.

4 credits

**ARAB 2021 INTERMEDIATE ARABIC I**

Review of grammar and study of composition in Arabic. Emphasis on the oral language. Practice of reading at the intermediate level. Prerequisites: ARAB 1002 or two years of high school Arabic.

3 credits

**ARAB 2022 INTERMEDIATE ARABIC II**

Review of grammar and study of composition in Arabic. Emphasis on the oral language. Practice of reading at the intermediate level.

3 credits

**Courses in Archeology (ACHA)****ACHA 3501 ARCHAEOLOGICAL MATERIALS I**

Description of the processes and fundamental methodologies for the interpretation of recovered cultural material from archaeological excavations. Emphasis on the theories and the concepts related to the classification and description used in ceramic, stone, and shell archaeological materials. Prerequisites: ANTH 1040, 3500.

3 credits

**ACHA 3502 ARCHAEOLOGICAL MATERIALS II**

Description of the processes and the fundamental methodologies for the interpretation of the recovered cultural material from archaeological excavations. Emphasis on the theories and the concepts related to the classification and description used in archaeological materials in archaefaunal remains, 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 (ARTS)****ARTS 1001, 1002, 2001, 2002, 3001, 3002, 4001, 4002 THEATER WORKSHOP**

Designed to familiarize students with theatrical techniques and scenery; emphasis on acting, and managing all aspects of a stage production. Students will be required to audition before officially registering in the course. A maximum of eight credits can be completed in this elective. Each semester the students will receive a grade of P or NP.

2 credits per course

**ARTS 1100 COLOR THEORY**

Theory and practice of the relative concepts of color: its physical qualities, its interaction in a work of art. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**ARTS 1103 TECHNICAL FOUNDATIONS AND DRAWING PRACTICE**

Application of basic elements and principles of art to drawing. Use of different techniques, with emphasis on work in two dimensions. Discussion of the basic elements of art and works of art at different epochs. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**ARTS 1104 DESIGN**

Solution of the formal and technical aspects of bidimensional and three-dimensional design. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1103.

3 credits

**ARTS 1150 PHILOSOPHY OF ART**

Analysis of the philosophical theories of art in different cultures. The student is stimulated to critically judge artistic expression.

3 credits

**ARTS 1200 INTRODUCTION TO GRAPHIC DESIGN**

Discussion of the fundamental elements of design. Practice in the use of lines, measures, colors, perspective, forms and the effect of light and shade. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**ARTS 1220 ELECTRONIC IMAGE**

Application of the different graphic formats of color work in impression and for the screen. Development of images of both types and the basic processes of their reproduction. Emphasis on the basic aspects of resolution, format, interpolation, handing of color and file sizes. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**ARTS 1300 POTTERY I**

Development of ceramic skills; techniques of throwing and hand building. Use of glazes and engobes. Requires 30 hours of lecture and 60 hours of lab.

4 credits

**ARTS 1400 BASIC PHOTOGRAPHY**

Discussion of photography as tool for the creation of a plastic work of art. Analysis of theory and visual contact skills in elementary photography. Correct use of the camera, film development, types of film, amplification of negatives and different grades and sizes of photographic paper. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**ARTS 1420 TYPOGRAPHY DESIGN**

Use of typography as a fundamental element of design, its historical perspective before computers and in the digital era. Designs of visual communication types. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**ARTS 1430 PRINTED PUBLICATION DESIGN**

Discussion of publication impression, color separation and impression techniques. Practice of ways of impression. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: GEIC 1010.

3 credits

**ARTS 1440 PHOTO MECHANICS**

Discussion of the photographic theories for graphic reproduction. Use of the process camera, darkroom techniques, orthochromatic film, the processes of reflection and transmission of light for works from original to line. Requires 15 hours of lecture and 30 hours of lab.

2 credits

**ARTS 1500 ACTING**

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 1540 DIGITAL PHOTOGRAPHY**

Analysis of the theory and practice in handling fixed images. Use of the digital camera for the creation of digital images. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1220.

2 credits

**ARTS 1600 EVOLUTION OF THE GRAPHIC DESIGN**

Discussion of the evolution of graphic design, from its beginnings to the present. Emphasis on the impact of the industrial revolution in the development of the discipline.

3 credits

**ARTS 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 2100 DESIGNS IN NATIVE MATERIALS**

Study of the innate properties of materials; exploration of their varied possibilities in the field of design and the development of aesthetic sensitivity. Discussion of assembly techniques, cutting and finishing works of art in these materials. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**ARTS 2104 HISTORICAL CONCEPTS OF PUERTO RICAN DESIGN**

Systematic study of ideas related to design in painting, sculpture, architecture and the minor arts.

3 credits

**ARTS 2105 DESIGNS IN MANUFACTURED MATERIALS**

Creative experiences with disposable natural and industrial materials. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**ARTS 2110 GRAPHIC DESIGN APPLIED TO INTERNET**

Use of typography, still images and images in movement. Introduction to language HTML and the edition programs of Web pages. Application of the principles and elements of art in the designs of electronic pages, graphic material distributed through cyberspace and the publication of material in Internet. Requires 15 hours of lecture and 30 hours of lab.

2 credits

**ARTS 2140 DRAWING I**

Basic problems in graphic execution with specific emphasis on the development of individual concepts. Requires 30 hours of lecture and 60 hours of lab. Prerequisite: ARTS 1103.

4 credits

**ARTS 2200 DIGITAL GRAPHIC DESIGN**

Theoretical and practical application of the use of the computer in the contemporary environment of digital graphic design. Use of fundamental design elements in digital scenarios and the different design programs. Manipulation of images in two dimensions. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: GEIC 1010.

3 credits

**ARTS 2250 PAINTING I**

Principles of oil and acrylic painting. Figurative painting, still life and free forms. Requires 30 hours of lecture and 60 hours of lab. Prerequisites: ARTS 1104, 2140. ARTS 1100 is recommended.

4 credits

**ARTS 2260 SCULPTURE I**

Study of the principles and elements of art applied to works of art in three dimensions. Discussion of the sculptural form. Application to work in clay and plaster cast. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1104.

3 credits

**ARTS 2300 POTTERY II**

Study of advanced techniques in the construction of clay objects with the pottery wheel or by hand with emphasis on the technical aspects of ceramics. Basic chemistry of ceramics and study of the diverse methods of firing. Study of trends in the design of ceramics in different periods and their conceptual and technical solutions. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ART 1300.

3 credits

**ARTS 2320 ANIMATION FOR INTERNET**

Use of the visual and interactive possibilities of animation for Internet. Introduction to animation programs and animation within the context of graphic design of Web pages. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2110.

2 credits

**ARTS 2330 DESIGN OF INTERACTIVE PROJECTS AND MULTIMEDIA**

Application of computerized animation programs of file and interactive in the production of interactive projects. Includes the composition, form and color in the production of the projects. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2200.

2 credits

**ARTS 2355 INTRODUCTION TO THE GRAPHIC ARTS**

Study of the basic processes: wood engraving, linoleum engraving, engraving with burin and engraving by etching. Study of the development of engraving over time. Analysis of its particularities and possibilities as an artistic means. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2140.

3 credits

**ARTS 2400 REPRODUCTION AND PRINTING**

Analysis of printing methods such as typography, gravure, silkscreen printing and Off-Set. Practice of ways of graphic reproduction. Requires 15 hours of lecture and 30 hours of lab.

2 credits

**ARTS 2403 HISTORY OF ART**

Panoramic study of art from prehistory to the realism of the nineteenth century.

3 credits

**ARTS 2500 PUPPET THEATER**

Selection, adaptation and preparation of a script for a puppet theater production. Application of basic construction techniques and utilization of disposable materials for puppet production.

3 credits

**ARTS 2520 THREE-DIMENSIONAL DESIGN**

Elaboration of digital designs and the application of its formal and conceptual possibilities. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2200.

2 credits

**ARTS 2530 VIDEO AND DIGITAL SOUND**

Review of digital video, the image in movement and the sound. Practice of the edition and manipulation techniques of the digital video. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2200.

2 credits

**ARTS 2531 SPECIAL EFFECTS FOR DIGITAL VIDEO**

Application of special effects in the production of digital videos, by means of the use of selected edition techniques. Requires 15 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2530.

2 credits

**ARTS 2700 MULTIPLE TECHNIQUES**

Application of different plastic techniques in creating works in two and three dimensions. Analysis of technical contributions to the solution of the concept in the work.

3 credits

**ARTS 2910 SUPERVISED PRACTICE**

Supervised professional practice in companies, organizations or agencies or other companies compatible with the areas of graphic design. Requires the completion of a minimum of 120 hours of practice and the participation in periodic meetings with a supervisor. Prerequisite: Have approved a minimum of 29 credits of the major requirements of the programs, and course GEIC 1010.

2 credits

**ARTS 2970 INTEGRATION SEMINAR OF GRAPHIC DESIGN**

Integration of the knowledge and skills acquired for the production of a professional portfolio. Prerequisites: ARTS 1200, 1440, 2200.

1 credit

**ARTS 3105 METAL JEWELRY**

Design on a small scale with emphasis on making jewelry utilizing metals such as copper, aluminum and sterling. Experimentation with casting on a small scale. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1103.

3 credits

**ARTS 3150 DRAWING II - FIGURE**

Study of the human anatomy as a form of art, using traditional techniques. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2140.

3 credits

**ARTS 3210 PAINTING II**

Introduction to freedom in handling painting techniques: oil, acrylics, collage etc. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2250.

3 credits

**ARTS 3250 SCULPTURE II**

Carving and modeling in one or two materials such as stone or clay. Discussion of the peculiarities in making works of art in round and relief. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ART 2260.

3 credits

**ARTS 3303 CERAMICS III**

Application of complex techniques and the conceptual and technical aspects of sculptural ceramics. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2300.

3 credits

**ARTS 3351 SERIGRAPHY I**

Study of silk-screening as a means of creation in Puerto Rico. Study of engraving techniques in silk-screening. Review of the differences in use and qualities produced by printing methods. Suitable and safe use of the materials in silk-screening. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1103.

3 credits

**ARTS 3352 SERIGRAPHY II**

Application of the skills and concepts of silk-screening in artistic creation. Analysis of silk-screening creations as works of art in and outside Puerto Rico. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 3351.

3 credits

**ARTS 3355 LINOLEUM AND WOOD ENGRAVING TECHNIQUES**

Application of engraving processes in wood and linoleum. Technical study: creation of the plate, inking and the stamping. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 2140, 2355.

3 credits

**ARTS 3400 PHOTOGRAPHY III**

Application of the skills learned in the field of photography. Introduction of new techniques such as solarization, “vignetting” and photographic diagram. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1400.

3 credits

**ARTS 3403 HISTORY OF MODERN AND CONTEMPORARY ART**

Panoramic study of the more recent artistic movements, beginning with Impressionism and including the styles of contemporary art.

3 credits

**ARTS 3405 HISTORY OF PUERTO RICAN ART**

Study of artistic evolution in Puerto Rico from the pre-Columbian period to the present.

3 credits

**ARTS 3450 COLOR PHOTOGRAPHY**

Introduction to the techniques and products utilized in color photography, stressing the composition and use of the descriptive and aesthetic aspect of color in photography. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**ARTS 3505 PUERTO RICAN THEATER**

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 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**

Emphasis on the development of individual concepts in graphic execution. Use of charcoal, pencil, crayon, pen, drawing with washes, etc. Requires 15 hours of lecture and 75 hours of lab. Prerequisite: ARTS 2140.

3 credits

**ARTS 4202 AIRBRUSH**

Application of Airbrush techniques for general painting and commercial design. Study of different materials for this technique and their safe use. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**ARTS 4210 MURAL PAINTING**

Study of mural concepts, independent projects. Analysis of the creation of mural paintings in and outside Puerto Rico. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2250.

3 credits

**ARTS 4253 SCULPTURE III**

Advanced techniques with emphasis on the development and improvement of traditional techniques. Experimentation with contemporary materials such as Plexiglas, polyester, resin, metals and others. Study of trends in sculpture over time. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 3250.

3 credits

**ARTS 4254 METAL SCULPTURE**

Creation of works of sculpture, utilizing techniques of soldering and casting in bronze and other metals. Requires 15 hours of lecture and 75 hours of lab. Prerequisite: ARTS 2260.

3 credits

**ARTS 4255 PAINTING III**

Experiments and research in painting. Emphasis on the development of individual concepts. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 3210.

3 credits

**ARTS 4256 SCULPTURE - THE HUMAN FIGURE**

Sculptural study of the human figure. Analysis of movement, proportion and rhythm of the human figure and its three-dimensional projection. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2250.

3 credits

**ARTS 4303 CLAYS AND GLAZES**

Chemical-physical relation of the materials utilized in ceramics and how they react during the different stages in making a ceramic object. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1300.

3 credits

**ARTS 4350 INTAGLIO TECHNIQUES**

Study and application of different techniques of Intaglio such as dry point, etching, aquatint and others. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2355.

3 credits

**ARTS 4352 LAYOUT DESIGN**

Design preparation for photo-mechanic printing. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1103.

3 credits

**ARTS 4353 LITHOGRAPHY**

Study and practice of the different graphic design techniques used in lithography. Knowledge of different materials used. Experimentation with the medium. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 2355.

3 credits

**ARTS 4355 PHOTO SERIGRAPHY**

Study of photographic images for creation, handling and printing when using silk-screening techniques. Emphasis on the application of photographic and typesetter prints in silk-screening artistic creations. Use of journalistic images, selection and handling of photographs taken to be used in the work and for making manual and electronic prints. Experimentation with typographic prints in silk-screening. Requires 15 hours of lecture and 45 hours of lab. Prerequisites: ARTS 1104, 3351.

3 credits

**ARTS 4360 DIGITAL ART**

Use of the computer for making artistic works. Study of existing equipment and programming for making images, the manipulation and handling of images. Emphasis on the application of the elements and principles of art in images. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 1104, GEIC 1010.

3 credits

**ARTS 4365 COMPUTERIZED GRAPHIC DESIGN**

Use of the computer and digital processes for making graphic designs. Study of programs for the design and printing of digital graphic material. Introduction to electronic publishing design. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ARTS 1104, GEIC 1010.

3 credits

**ARTS 4453 SPECIALIZED PHOTOGRAPHY**

Introduction to the processes and techniques used by Island newspapers to publish photographs. Emphasis on the production of a visual and written narrative. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1400.

3 credits

**ARTS 4500 STAGECRAFT**

Global study of technical areas in theater: scene, costume and lighting design. Models and drawing projects required. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: ARTS 1103.

3 credits

**Courses in Art Education (ARED)****ARED 1080 FIELD EXPERIENCES IN ART EDUCATION I**

Introduction of the educational system with emphasis on the visual arts program. Selected group or individual experiences in schools and other agencies with the visual arts component. Requires a minimum of 10 hours in the educational scenario and 10 hours of meetings with the professor. Course must be passed with a minimum grade of B.

1 credit

**ARED 1900 FUNDAMENTALS OF ART EDUCATION**

Introduction to the study of art education principles. Review of the theories and philosophies of art education. Includes the developmental stages in learning art. Prerequisites: ARED 1080, EDUC 2021.

3 credits

**ARED 2080 FIELD EXPERIENCES IN ART EDUCATION II**

Introduction to the teacher-student relationship. Selected group or individual experiences in schools and other agencies with the visual arts component. Requires a minimum of 15 hours in the educational scenario and 15 hours of meetings with professors. Course must be passed with a minimum grade of B. Prerequisite: ARED 1080.

2 credits

**ARED 3080 CLINICAL EXPERIENCES IN ART EDUCATION I**

Educational practice as an assistant teacher in a school or visual arts program. Initial work with small groups, then with the whole group. Requires a minimum of 25 hours in the educational scenario and 15 hours of meetings with the professor. Course must be passed with a minimum grade of B. Prerequisites: ARED 1080, 2080, EDUC 3013.

2 credits

**ARED 3750 EDUCATIONAL TECHNOLOGY IN ART TEACHING**

Study, operation, and practice of audiovisual resources for the development of educational materials. Operation of different educational and graphical computer programs including the selection, evaluation, and their use to make the educational process viable in the area of the arts, as well as the graphical and artistic productions that facilitate the

teaching-learning process. Requires 15 hours of lecture and 30 hours of lab. Prerequisites: ARED 1900, GEIC 1010.

2 credits

#### **ARED 3850 METHODS OF TEACHING ART IN THE ELEMENTARY SCHOOL**

Study of the relation between curriculum and instruction. Includes learning theories applied to the methodology of teaching visual arts in the elementary school. Provides experiences for the development of skills in the design, selection, and modification of teaching units, courses, and programs. Practice in writing plans, experience with materials and art media to be used at this level. Demonstration classes. Prerequisites: ARED 1900, 3750.

2 credits

#### **ARED 3851 METHODS IN ART EDUCATION IN THE SECONDARY SCHOOL**

Discussion of the visual arts education methods at the secondary level. Practice in the writing of education plans, and demonstration classes. Experiences with materials and art media to be used at this level. Prerequisites: ARED 1900, 3850, EDUC 4011.

2 credits

#### **ARED 4015 EVALUATION, ASSESSMENT AND RESEARCH IN ART TEACHING**

Study and application of teaching-learning theories, the techniques, and the mediums used by art teachers in planning and developing educational activities. Diagnosis of needs, formulation of goals, selection of content, and planning of the techniques that will be used taking into account the principles of design and the elements of art. Application of evaluation instruments and assessment techniques to improve the teaching-learning process. Use of quantitative and qualitative results to introduce students to the research that they can perform in the classroom.

3 credits

#### **ARED 4913 CLINICAL EXPERIENCES ART EDUCATION II**

Practice teaching as a student teacher under the direct supervision of a cooperating teacher, specialized in art education, and of a University supervisor. The student teacher will have the opportunity to put art education methodology into practice and will have the responsibility of planning and giving a class during the school semester. The practicing student will be placed in an elementary or secondary private or public school classroom. The classroom becomes a laboratory where techniques, methods strategies of the profession are used. A minimum of three hours daily from Monday to Friday in an educational scenario is required. Prerequisites: 90 credits including ARTS 1104, 2403, ARED 3750, 3850, 4015.

6 credits

### **Courses in Auditing (AUDI)**

#### **AUDI 2195 GOVERNMENTAL REGULATIONS IN BUSINESS**

Introductory study of regulations applying to business, such as: income tax laws, movable and immovable assets, sales tax, inheritance, and donations. Includes employer regulations related to occupational health and safety, and special laws that regulate business.

3 credits

#### **AUDI 3091 FUNDAMENTALS OF INTERNAL AUDITING**

Introduction to internal and operational auditing. Evolution and characteristics of internal auditing are studied as well as the relationship of auditing to other disciplines and its role in management. Complete view of the auditing cycle is presented: initial stage, report preparation and discussion. Study and analysis of different formats and documents in data collection. Relative importance of the evidence collected during the audit is examined and the Code of Professional Ethics of the Internal Auditor is studied. Prerequisite: ACCT 2062.

4 credits

#### **AUDI 3092 INTERNAL AUDITING ADMINISTRATION**

Function of the internal auditor within the administrative framework of the enterprise. Analysis of the responsibilities of the Internal Auditing Department. Strategy planning for the development of a short term and long

term work plan with emphasis on relationships to external auditors, management and the board of directors. Study of the implementation of the quality control program for evaluating internal auditing. Prerequisite: AUDI 3091.  
3 credits

#### **AUDI 3190 AUDITING OF INFORMATION SYSTEMS**

Analysis of the responsibility and function of the auditor in the field of information systems. The nature and operation of the systems are described, as well as the means for testing the efficiency and effectiveness of their controls. Use of computerized programs and application of auditing techniques by computer such as: test data, extraction of samples, tracking by computer and development of flow charts. Prerequisites: AUDI 3091, GEIC 1010.

4 credits

#### **AUDI 4194 REPORT WRITING IN AUDITING**

Preparation of internal, external, compliance and operational auditing reports. This includes letters of representation, management, contract, recommendations for internal control, narrative, findings summary, internal auditing reports, opinions and other written communications that are part of the duties of the auditor's role. Prerequisites: AUDI 3091, ACCT 4010.

3 credits

#### **AUDI 4195 INVESTIGATION OF FRAUD**

Analysis of several aspects of fraud which include: its nature, its prevention, detection and investigation. The course is designed to expose the student to the process of fraud investigation that involves compiling evidence, taking declarations, writing reports, assisting in its detection and prevention, etc. Prerequisites: ACCT 4010, AUDI 3092.

3 credits

### **Courses in Bioinformatics (BIIN)**

#### **BIIN 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 1101 MODERN BIOLOGY I**

Study of the characteristics and organization of living organisms. Emphasis on the structure of the main macromolecules, cells, cellular cycle and their metabolic processes. Use of scientific reasoning for the study of biological processes.

3 credits

#### **BIOL 1102 MODERN BIOLOGY II**

Study of genetic processes. Includes the concepts of cellular division, Mendelian and molecular heredity, genetic expression and the fundamental concepts of development. Discussion of the ecology and evolution concepts. Prerequisite: BIOL 1101.

3 credits

#### **BIOL 1103 SKILLS LABORATORY I**

Development of basic laboratory skills and techniques. Emphasis on safety rules, measuring systems, statistical methods and the adequate use of laboratory equipment and electronic information resources. The scientific method is used for problem solving in the field of biology. Students are required to submit laboratory reports following established scientific formats. Requires 45 hours of lab.

1 credit

#### **BIOL 1116 FUNDAMENTALS OF HUMAN ANATOMY AND PHYSIOLOGY**

Fundamental concepts of the structure and functions of different systems of the human body, including their pathophysiological consideration. Not to be taken for credit by majors in biology. Requires 60 hours of lecture and 45 hours of lab. 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, structures, function, reproduction and development of the principal animal groups. Emphasis on ecological and evolutionary interrelations. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 1102.

3 credits

**BIOL 2104 BOTANY**

Study of the structure, function and reproduction of the main plant groups. Discussion of the importance of plants in the ecosystems and the socioeconomic impact. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 1102.

3 credits

**BIOL 2151 HUMAN ANATOMY AND PHYSIOLOGY I**

Fundamental concepts of histology and the integumentary, skeletal, muscular and nervous systems in the human body from the anatomical and physiological points of view. Their pathophysiological considerations are excluded. Not to be taken for credit by majors in biology. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 1003.

3 credits

**BIOL 2152 HUMAN ANATOMY AND PHYSIOLOGY II**

Fundamental concepts of the endocrine, reproductive, cardiovascular, lymphatic, immunological, excretory, respiratory and digestive systems in the human body. Their pathophysiological considerations are excluded. Not to be taken for credit by majors in biology. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2151.

3 credits

**BIOL 2153 BIostatistics**

Application of statistics in biological research. Emphasis on the fundamental concepts of descriptive statistics for the analysis of grouped and not grouped data for a variable or multivariables. Application of the concepts of linear correlation, linear regression and probability distributions. Use of technological tools for statistical analysis. Prerequisites: MATH 1500, BIOL 1102.

3 credits

**BIOL 2154 FUNDAMENTALS OF MICROBIOLOGY**

Basic principles of microbiology emphasizing bacteria as a representative prokaryotic cell. Position of this cell in relation to the other microorganisms and viruses regarding sanitation and health in higher organisms. Not to be taken for credit by majors in biology. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 1003 or 1102.

3 credits

**BIOL 2155 GENETICS**

Study of the processes related with heredity and its regulation. Includes from classical to molecular genetics and their relation with evolutionary processes. Use of prokaryote and eukaryote cells as models to illustrate these aspects. Discussion of ethical topics related to genetic manipulation. Prerequisites: BIOL 1102, GEMA 1200.

3 credits

**BIOL 2600 FOUNDATIONS OF OCEANOLOGY**

Introduction to the oceans and the topics that make up the discipline of marine sciences. Includes: chemical, physical, geological and biological oceanology. Emphasis on the discussion on the history of oceanology, the physical and chemical properties of sea water, the physical processes of currents, the tides and waves, the geological aspects of the ocean floor, the different ecosystems of the sea, biological processes and the effect of climatic changes on the seas and oceans. The primary concepts related to examples in the oceanology of Puerto Rico and the Caribbean.

3 credits

**BIOL 2800 INTRODUCTION TO ASTROBIOLOGY**

Study of the origin, evolution, distribution, and search for life in the universe. Emphasis on the discussion of the origin and future of life, life in extreme environments, the natural and anthropogenic factors that could alter the evolution of the species on the planet and the search for extraterrestrial intelligence.

3 credits

**BIOL 3105 GENERAL MICROBIOLOGY**

Study of microorganisms with emphasis on the study of bacteria. Includes their morphology, physiology, genetics, taxonomy, ecology, host-parasitic relation and control. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: BIOL 1102, 1103, CHEM 1111.

4 credits

**BIOL 3106 ANATOMY AND HUMAN PHYSIOLOGY**

Study of the physiological structures and mechanisms of the human body. Emphasis on the integration of the corporal systems; maintenance and alteration of homeostasis. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: CHEM 2212.

4 credits

**BIOL 3205 ECONOMIC ZOOLOGY**

Economic exploitation of vertebrates and invertebrates. Emphasis on the reproduction, raising and handling of animals for consumption. Breeding and conservation of animals for the study of zoology. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2010.

3 credits

**BIOL 3213 PARASITOLOGY**

Study of morphology, taxonomy, life cycles and epidemiological aspects of human and domestic animal parasites. Emphasis on the host-parasite relationships. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2103.

3 credits

**BIOL 3214 ENTOMOLOGY**

Study of the structure, physiology, taxonomy, behavior, ecology and economic importance of insects. Requires 30 hours of lecture and 45 hours of lab. Includes field studies. Prerequisite: BIOL 2103.

3 credits

**BIOL 3216 ANIMAL BEHAVIOR**

Study of the internal and external factors responsible for the regulation, development, and variation of animal behavioral patterns. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2103.

3 credits

**BIOL 3219 BIOLOGY OF INVERTEBRATES**

Study of the morphology, physiology, ecology and systems of the representative invertebrate groups. Emphasis on species native to Puerto Rico. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2103.

3 credits

**BIOL 3255 ECONOMIC BOTANY**

Economic importance of plants emphasizing the use of their products, cultivation and the relationship to human history. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2010.

3 credits

**BIOL 3257 SYSTEMATIC BOTANY**

Classification and nomenclature of vascular plants. The laboratory includes field trips. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2010.

3 credits

**BIOL 3309 FOOD MICROBIOLOGY**

Interaction between microorganisms and food; techniques for control of microorganisms and food preservation; production of fermented foods and diseases transmitted by microorganisms developing in foods. Includes health and quality controls. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3105.

3 credits

**BIOL 3405 IMMUNOLOGY**

Study of defense mechanisms of vertebrates at the cellular and molecular level. Description of the morphology and functions of the cells that participate in the immunological processes and of their products, such as antibodies, complements and other substances. Study of the structures and functions of immunoglobulins. Characterization of the reaction between antigens and antibodies, the regulation of the immunological system and the genetic controls. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3105.

3 credits

**BIOL 3454 PLANT ANATOMY**

Characteristics of cells and tissues of vascular plants. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2010.

3 credits

**BIOL 3503 GENERAL ECOLOGY**

Study of the biotic and abiotic factors limiting the distribution and abundance of organisms and their relation with the evolutionary processes. Emphasis on the adaptations of organisms with their environment and the structure of the different organizational levels that make up the biosphere from the species to the biome. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 2104, CHEM 1111.

3 credits

**BIOL 3504 ENVIRONMENTAL HEALTH**

Interrelationship between the environment and human health. The effect of contamination by toxic and non-toxic wastes. Risk factors and biological, physical and social implications, as well as prevention and mechanisms for reducing the environmental impact are analyzed. Prerequisites: BIOL 3105, GEMA 1200.

3 credits

**BIOL 3505 ENVIRONMENTAL LAWS, POLICIES AND REGULATIONS**

Legal aspects and environmental policy, including their history and the scope of laws and regulations. The evaluation of an Environmental Impact Statement is required. Prerequisite: BIOL 3504.

3 credits

**BIOL 3630 MARINE SCIENCE DIVING**

Development of the skills and the basic techniques of diving as a tool of marine research, particularly in the Caribbean. Includes the obtaining of data, specimen collection and planning, and implementation of marine research. Study of the basic concepts of diving. Includes practice in a swimming pool and in the sea with a

certificated instructor. Prerequisites: BIOL 2600, satisfactory swimming test and medical certification of diving aptitude.

3 credits

#### **BIOL 3640 NAUTICAL SCIENCES**

Study of the principles of handling boats and navigation as a tool in marine sciences. Includes types and uses of recreational and research boats, cartographic use, piloting, moorings and knots, security in navigation and the use of electronic navigation technology (marine radio, radar, GPS and echo sonar). Prerequisite: BIOL 2600.

2 credits

#### **BIOL 3904 TOXICOLOGY**

Study of the principles of toxicokinetics and toxicodynamics, methods of analysis and evaluation of mutagenic, teratogenic and carcinogenic agents. Emphasis on hepatotoxicology and neurotoxicology. Prerequisites: BIOL 3106, CHEM 2222.

3 credits

#### **BIOL 4000 MARINE BIOLOGY**

Analysis and discussion of the main concepts of marine biology. Includes the biotic diversity of the seas, coasts and estuaries, their distribution, physiology, behavior, adaptations, ecology and the relations between the organisms and the physical and-chemical environments. In these topics, tropical, and Caribbean marine biology are emphasized. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2600.

4 credits

#### **BIOL 4104 PLANT PHYSIOLOGY**

Fundamental functions of high-order plants, emphasizing the relationships of water, photosynthesis and reproduction. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2010.

3 credits

#### **BIOL 4105 FUNDAMENTALS OF GEOGRAPHIC INFORMATION SYSTEMS (GIS)**

Analysis of GIS concepts by means of computerized systems that process and examine spatial data. Discussion of geography, cartography and space analysis concepts based on geographic locations. Application of space analysis using data and maps of Puerto Rico and other parts del the world. Requires 45 hours of lecture/lab. Requires additional time in an open lab.

3 credits

#### **BIOL 4109 GENERAL PHYSIOLOGY**

Analysis of the functions and processes exhibited by animals. Includes the concepts of transportation, respiration, digestion, excretion, reproduction, and hormonal, muscular and nervous control. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 2103, CHEM 2222.

3 credits

#### **BIOL 4303 MYCOLOGY**

The morphological, physiological and taxonomical study of fungi. Emphasis on their economic, medical, industrial and environmental importance. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3105.

3 credits

#### **BIOL 4304 MEDICAL MYCOLOGY**

Fungi pathogenic to human beings with emphasis on the epidemiology, clinical aspects, diagnosis and prevention. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3105.

3 credits

#### **BIOL 4305 MEDICAL MICROBIOLOGY**

Microorganisms which are pathogenic to human beings, emphasizing epidemiology, clinical conditions, diagnosis and prevention. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3105.

3 credits

**BIOL 4306 VIROLOGY**

Introduction to the concepts of the biology of viruses of bacteria, plants and animals, including morphological, genetic and epidemiological aspects. Emphasis on the principles of molecular biology that regulate the cycle of viral infection, the cellular metabolism and the cellular and systemic defense mechanisms. Prerequisites: BIOL 2155, 3105.

3 credits

**BIOL 4307 MICROTECHNIQUES**

The fixation, preservation and histological and histochemical preparation processes using different species of organisms. Requires 15 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3106.

2 credits

**BIOL 4403 EVOLUTION**

The processes responsible for the evolution of species. Evidence and contributions of paleontology, biogeography, molecular biology, genetics and ecology and their importance in the development of Western thought. Prerequisite: BIOL 2155.

3 credits

**BIOL 4405 EMBRYOLOGY**

Study of embryonic cells supplemented by experimental methods. Emphasis on fertilization, maturation and ontogenesis. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3106 or BMSC 3012.

3 credits

**BIOL 4407 HUMAN ANATOMY**

Theoretical and practical study of tissues and organs and their interaction in the systems of the human body. Course designed for students in the Health Science Program. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 2103.

3 credits

**BIOL 4408 COMPARATIVE FUNCTIONAL ANATOMY**

Comparative study of vertebrates from the point of view of the relationship between structure and function. Systems that have evolved and diversified as a result of environmental conditions. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3106.

3 credits

**BIOL 4433 INDUSTRIAL MICROBIOLOGY**

Industrial applications of microorganisms in the production of metabolites with commercial importance. The processes of fermentation, biodegradation and bioconversion are discussed. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 3105, CHEM 2222.

3 credits

**BIOL 4494 PHARMACOLOGY**

The effects of medicine on the human body. Discussion of classification, action mechanisms, dosage, side effects, contraindications and interactions with other prescription drugs. Prerequisites: BIOL 3106 or BMSC 3012 and CHEM 2222.

3 credits

**BIOL 4503 CONSERVATION AND MANAGEMENT OF NATURAL RESOURCES**

Application of management techniques in the conservation of natural resources. Emphasis on water resources, coastal and forest resources, soils, flora and fauna. Field trips are required. Prerequisite: BIOL 3503.

3 credits

**BIOL 4600 HISTOLOGY**

Function and structure of tissues, individual cells and their integration in the systems. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 3106.

3 credits

**BIOL 4604 CELLULAR AND MOLECULAR BIOLOGY**

Study of the cell and its components. Discussion of the relationship between the cellular structures and their functions; their metabolic processes and cellular communication and the flow of molecular information. Discussion of experiments that have contributed to the study of the cell. Prerequisites: BIOL 2155, CHEM 2221. Recommended course: CHEM 2222.

3 credits

**BIOL 4605 SKILLS LABORATORY III**

Emphasis on the use experimentation techniques for problem solving and for the search for answers. Molecular biology and bioremediation techniques are used. A research project including the design and the performance of the experiment is required as well as the writing of the corresponding scientific report. Requires 60 hours of lab. Prerequisite: BIOL 2013.

2 credits

**BIOL 4700 AGRICULTURAL AND ENVIRONMENTAL BIOTECHNOLOGY**

Analysis of the effects and applications of the biotechnology in food production, in human health and in the preservation of the environment. Includes the study of theoretical foundations in biotechnology, current biotechnological strategies and the products that are generated through biotechnology. Discussion of the ethical, legal and economic aspects that arise from the development and implantation of biotechnology in society.

3 credits

**BIOL 4905 INTRODUCTION TO PATHOLOGY**

Anatomical and histological alterations occurring in the different human systems, including their etiology, description and clinical aspects. Prerequisite: BIOL 3106 or BIOL 4407.

3 credits

**BIOL 4907 HEALTH EDUCATION**

Educational methods and techniques for achieving change in people's attitudes on health matters. Prerequisite: BIOL 3504.

3 credits

**BIOL 4909 PUBLIC HEALTH**

Magnitude, distribution and causes of diseases in human populations. Mechanisms of disease transmission, incidence and prevalence in populations. Prerequisite: BIOL 4907.

3 credits

**BIOL 4912 PRACTICUM IN BIOLOGY**

Supervised work practice in industries, research laboratories, governmental agencies, hospitals or other enterprises related to the different areas of study offered in biology. A minimum of 135 hours is required as well as periodical meetings with the course coordinator. Prerequisites: Have passed all core courses in biology at the bachelor's level and the authorization of the Director of the Department.

3 credits

**BIOL 4931 MARINE RESEARCH I**

Planning a marine research project. Development and beginning of a research project decided with and under the supervision of a professor-mentor. Includes the review of literature, development of methodology, obtaining and analysis of data, on field trips. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 4000.

3 credits

**BIOL 4932 MARINE RESEARCH II**

Implementation of a research project decided with and under the supervision of a professor-mentor. Includes obtaining and analysis of data, on field trips. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 4931.

3 credits

**BIOL 4953 RESEARCH METHODS**

Identification and utilization of the scientific method in the solution of problems. Setting up of hypothesis, bibliographical search, design and implementation of the experiment, data interpretation and writing scientific papers. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: 30 credits in natural sciences.

3 credits

**BIOL 4955 INTEGRATING SEMINAR**

Integration of the knowledge acquired by students through oral and written presentations of creative work, using scientific papers as primary base in their specialization in the area of biology. Prerequisite: 30 credits in biology.

1 credit

**BIOL 4960 BIOETHICS**

Survey of the ethical considerations in life sciences, in scientific research as in their applications. Discussion of the responsibility in research with human and animal participants, as well as the ethical dimensions of other practices carried out in life sciences. Analysis of cases and application of bioethical principles and applicable regulations. Prerequisite: Have passed at least 90 credits.

3 credits

**Courses in Biomedical Sciences (BMSC)****BMSC 2210 HUMAN GENETICS**

Fundamental concepts of human genetics, from the perspective of structure, function and transmission of genes; including interaction gene-gene and gene-environment. Emphasis on the molecular aspects of human inheritance, genetic etiology of diseases and research techniques in human genetics. Prerequisite: BIOL 1102.

3 credits

**BMSC 3011 FUNDAMENTALS OF HUMAN ANATOMY AND PHYSIOLOGY I**

Fundamental concepts of histology and the integumentary, skeletal, muscular and nervous systems of the human body from the anatomical and physiological point of view, including pathophysiological considerations of these. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 1102.

3 credits

**BMSC 3012 FUNDAMENTALS OF HUMAN ANATOMY AND PHYSIOLOGY II**

Fundamental concepts of the endocrine, reproductive, cardiovascular, lymphatic, immune, excretory, respiratory and digestive systems of the human body, including pathophysiological considerations. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BMSC 3011.

3 credits

**BMSC 4015 BIOCHEMISTRY OF HUMAN PHYSIOLOGY**

Study of metabolic transformations that chemical compounds and biopolymers undergo at cellular level. Physiological studies that include bioenergetics, vitamin and hormone metabolism, anabolism and catabolism of carbohydrates, lipids and proteins, production of energy through the cycle of 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 Biotechnology (BIOT)****BIOT 3250 MOLECULAR BIOTECHNOLOGY**

Analysis of the principles and the application of molecular biotechnology techniques used in the genetic manipulation of plants, animals, and microorganisms with the purpose of synthesizing products for human benefit.

Application of techniques of recombinant DNA, restriction enzymes, vectors, cloning, sequencing, and amplification of DNA and bioinformatics. Includes the ethical and legal aspects related to biotechnology. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 2155, 3105.

3 credits

#### **BIOT 3750 RECOMBINANT DNA TECHNOLOGY**

Analysis of the techniques used for genetic manipulation and the expression in cells and complex organisms. Emphasis on the use of bioinformatics and bimolecular characterization methods. Discussion of gene therapy, bio-drug production, agronomic improvement and diagnosis and forensic technologies. Includes related ethical and legal aspects. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: BIOL 2155, BIOT 3250.

3 credits

#### **BIOT 4620 TISSUE CULTURE AND TECHNICAL APPLICATIONS**

Analysis of the methodology of the culture of cells coming from mammals, plants and insects. Discussion of cellular culture applications in the biotechnology industry and their ethical implications. Emphasis on the requirements of clean rooms, sterile clothes, aseptic techniques, instrumentation, classification of cellular lines, detection of contamination and quality controls. Application of cellular culture techniques and techniques for the detection of components or cellular products. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: BIOL 4604.

3 credits

#### **BIOT 4801 OPERATIONAL BIOTECHNOLOGY I**

Analysis of the upstream manufacturing processes of biological products in eukaryotic cells on a large scale. Emphasis on cellular culture in bioreactors. Discussion of the regulations and operational aspects in the biotechnological industry. Prerequisites: BIOT 3750, 4620.

2 credits

#### **BIOT 4802 OPERATIONAL BIOTECHNOLOGY II**

Analysis of downstream processes of recovery and purification of biological product on a large scale in the biotechnological industry. Discussion of the regulatory provisions of the regulating agencies for compliance with the quality requirements of the final product. Prerequisites: BIOT 4801, 4928.

2 credits

#### **BIOT 4928 PROTEIN PURIFICATION AND ANALYSIS**

Analysis of the methods used in the separation, purification, filtration and drying of native and recombinant proteins. Application of the techniques of column chromatography, centrifuging, separation by membrane, and filtration of tangential and dried flow. Discussion of protein structure, and the administration and analysis of protein activity. Requires 30 hours of lecture and 45 hours of lab. Prerequisites BIOL 4604, CHEM 4220.

3 credits

### **Courses in Business Administration (BADM)**

The courses in Business Administration are designed to develop understanding of the principles that regulate the business activities of enterprises. They aim to expose students to the concepts, principles and fundamental practices of the different disciplines of business administration in major courses or in related and elective courses. The different fields are: management, accounting, marketing, economics, finance, quantitative methods and the use of human resources.

These courses allow students to understand and apply contemporary concepts, theories, analysis instruments and points of view on human behavior, all of which are vital elements in terms of the economic and social progress of the country.

#### **BADM 1110 INTERGOVERNMENTAL FINANCIAL ADMINISTRATION**

Administrative, political and economic aspects of revenue systems at the federal, state and local levels. Analysis of major taxes, intergovernmental financial relations, and the administration of public enterprise and debt. Prerequisite: MAEC 3234.

3 credits

**BADM 1550 BUSINESS MANAGEMENT AND ORGANIZATION (FOR ASSOCIATE DEGREE CANDIDATES)**

Management and organization in relation to types of business, location and physical layout; the buying, selling, pricing and operating functions of business.

3 credits

**BADM 1900 FUNDAMENTALS OF MANAGEMENT**

Description of organizational fundamentals, development and operations. Emphasis on managerial functions: planning, organization, direction and control. Discussion of topics that affect modern management, such as: globalization, ethics, technology, human resource integration, handling of change, competitiveness, and innovation and the handling of diversity. 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

The following courses, although not identified as business administration courses, are offered by that department. These courses are offered only for Associate Degree Candidates.

**MAMS 2410 TRANSPORTATION AND TRAFFIC MANAGEMENT**

Problems of transporting goods from the production line to the home. Advantages and limitations of transportation methods. The traffic department and the distributive business organization. Prerequisite: MKTG 1210.

3 credits

**MAMS 2630 PUBLIC RELATIONS**

Current public relations practice and its application to marketing. Organization of public relations work; planning and execution of the public relations program; new developments and trends and their application.

3 credits

**Courses in Cardio-Respiratory Care (CARD)****CARD 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 PREPARATION FOR LOCAL AND NATIONAL BOARD EXAMS**

The course is designed to prepare the students to successful pass the local examinations of Puerto Rico in Spanish and the national exams in English: Entry Level (CRT) Advanced Level (RRT). Prerequisites: CARD 2110, 2120, 2130, 2233. Corequisites: CARD 2111, 2131, 2140, 2910.

2 credits

**CARD 2233 MECHANICAL VENTILATION**

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

**CARD 3120 PRINCIPLES OF RESEARCH IN CARDIO-RESPIRATORY CARE**

The course is based on the knowledge and development of skills used to search for, select read, interpret and evaluate research reports and to determine their application to clinical practice. It aims to familiarize the student with the basic concepts of research using the scientific method, and the skills necessary to conduct research successfully. Prerequisites: possess an Associate Degree in Cardio-Respiratory Care. Corequisite: CARD 3130.

2 credits

**CARD 3130 ADVANCED MEASURES OF CARDIOPULMONARY RESUSCITATION AND ELECTROCARDIOGRAPHY**

The course is based on the Manual of Advanced Cardiopulmonary Resuscitation of the American Heart Association, contributing to enable the student in the recognition and handling of patients in critical conditions requiring advanced measures of resuscitation, in the coronary intensive room as well as in the emergency room. Includes electrocardiography principles and skills. Requires 30 hours of lecture and 90 hours of lab. Prerequisite: Associate Degree in Cardio-Respiratory Care. Corequisite: CARD 3120.

4 credits

**CARD 3230 LEADERSHIP AND ADMINISTRATION IN CARDIO-RESPIRATORY CARE**

Study of the principles of administration and leadership, and the medical, administrative and technical management of the services of respiratory care in a hospital. Discussion of the methods used for the continuous improvement of the quality, and the development and implementation of protocols to help improve respiratory care. The new models in services offered, cost effectiveness, handling of diseases and medicine based on evidence are examined. State and federal laws related to health services, regulations and related policies of accrediting agencies of hospitals and other related organizations are discussed. Prerequisites: CARD 3120, 3130.

3 credits

**CARD 4910 INTEGRATED PRACTICE II**

Students will intervene with patients in different health scenarios. Emphasis on patients in continuous mechanical ventilation in critical care units: intensive and coronary care and emergency rooms. Clinical practice based on the basic and advanced detailed content of the NBRC Combined Detailed Content Outline matrix and the Entry Level (CRT) and Advanced Level (RRT) national examinations. Requires 180 hours of lab. Prerequisite: CARD 3230. Corequisites: CARD 4920, 4970.

4 credits

**CARD 4920 CARDIO-RESPIRATORY CARE IN NEONATOLOGY AND PEDIATRICS**

The course is designed so that the student intervenes with patients in the areas of intensive neonatology and Pediatrics. The prenatal and neonatal evaluation, the performance of the different diagnostic tests, treatment, mechanical ventilation and cardiopulmonary resuscitación, considering the pulmonary structure of new-born baby are discussed. Requires 30 hours of lecture and 90 hours of lab. Prerequisite: CARD 3230. Corequisites: CARD 4910, 4970.

4 credits

**CARD 4930 ADVANCED CARDIO-RESPIRATORY CARE**

Intensive practice integrating knowledge and skills in the cardio-respiratory care of adults in areas of: Intensive Surgery, Medicine, Coronary, Multidisciplinary and Emergency Room. The student will be exposed to specialized

techniques to evaluate gas exchange and when this is indicated and how to obtain, process and analyze arterial and venous gases. Students will also be exposed to situations of when and how to execute transcutaneous gas evaluations, capnography and capnometry, oximetry, indirect calorimetric and oxygen analysis. Procedures of analysis, calibration, quality control and proficiencies according to requirements of the Department of Health, CLIA, and other hospital accrediting agencies. The measures of advanced cardiorespiratory diagnosis will be studied so that the student may evaluate median and critically ill patients. Requires 30 hours of lecture and 90 hours of lab. Prerequisites: CARD 4910, 4920, 4970.

4 credits

#### **CARD 4970 SEMINAR**

The course focuses on the use and evaluation of equipment and procedure used in the diagnosis and therapeutic handling of patients with disease and cardiopulmonary conditions. This includes the hemodynamic monitoring and other invasive and noninvasive procedures. Prerequisite: CARD 3230. Corequisites: CARD 4920, 4910.

2 credits

## **Courses in Chemistry and Chemical Technology (CHEM)**

#### **CHEM 1111 GENERAL CHEMISTRY I**

Study of matter, its relationship with energy, its properties and its behavior from a macroscopic and microscopic qualitative approach. Formulation of basic concepts of chemistry through laboratory experience. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: GEMA 1200.

4 credits

#### **CHEM 2110 GENERAL CHEMISTRY FOR HEALTH SCIENCES**

Theoretical and practical study of the fundamental principles of the structure and behavior of matter, with emphasis on the state of organic molecules of biological importance and their metabolic reactions. Practice of analysis techniques will be emphasized in the laboratory. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: GEMA 1000.

4 credits

#### **CHEM 2115 GENERAL CHEMISTRY FOR ENGINEERS**

Chemistry concepts and applications, relative to: experimental measurements, atomic and molecular theories; thermodynamics; properties of gases, kinetic molecular theory; liquid and solid states, their intermolecular forces; colligative forces and properties. Aqueous-media reactions: reduction/oxidation (red-ox), precipitation, acid-base combination. Requires 45 hours of lecture and 45 hours of lab. Not to be taken for credit by biology or chemistry majors. Prerequisite: MATH 1500.

4 credits

#### **CHEM 2212 GENERAL CHEMISTRY II**

Fundamental principles of chemistry and its applications with emphasis on the quantitative study of the structural and energetic properties associated with matter and its transformations. Includes topics related to solid and liquid states, solutions, thermodynamics, chemical kinetics, equilibrium and electrochemistry among others. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: CHEM 1111, MATH 1500.

4 credits

#### **CHEM 2221 ORGANIC CHEMISTRY I**

Theoretical and experimental study of the physical, chemical and spectroscopic traits of organic compounds. Emphasis on nomenclature, isomerism, synthesis and reactions of hydrocarbons, alcohols, halogenuros of alkyl and aromatic compounds. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: CHEM 1111.

4 credits

#### **CHEM 2222 ORGANIC CHEMISTRY II**

Theoretical and experimental study of organic compounds. Emphasis on spectroscopy, nomenclature, isomerism, synthesis and reactions including mechanisms of ethers, organometallic, carbonílicos and carboxylic, compounds amines and composed of biological interest. It includes in addition, the study of the cicloadición Diels-Alder

according to the with the frontier orbital theory. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: CHEM 2221.

4 credits

**CHEM 2223 DEVELOPMENT AND APPLICATION OF DIDACTIC MATERIALS IN CHEMISTRY**

Development of instructional materials, such as: simple laboratory equipment and chemistry-physical models. Application of these materials as educational tools in the classroom. Requires 45 hours of lecture/lab. Prerequisite: CHEM 2222.

3 credits

**CHEM 3000 ENVIRONMENTAL CHEMISTRY**

Environmental contamination and conservation with emphasis on the chemical, biological and physical processes involved. Prerequisite: CHEM 2212.

3 credits

**CHEM 3010 ENVIRONMENTAL CHEMICAL ANALYSIS**

Laboratory techniques for the analysis of water, soil and air. Methods commonly used in field and laboratory sampling and analysis. Description of the most recent technology for analysis and restoration. Requires 30 hours of lecture and 45 hours of lab. Not to be taken for credit by majors in chemistry and chemical technology. Prerequisite: CHEM 2212.

3 credits

**CHEM 3015 ENVIRONMENTAL ANALYTICAL CHEMISTRY**

Practice in methods of chemical analyses for components and polluting agents of soil, natural and industrial waters and of air. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: CHEM 2212.

4 credits

**CHEM 3140 PETROCHEMISTRY**

Conversion of petroleum into useful products with emphasis on the chemical processes involved. Prerequisite: CHEM 3320.

3 credits

**CHEM 3180 CHEMICAL LITERATURE AND INFORMATION RETRIEVAL**

Training in the use of chemical literature. Development of bibliographic search strategies in primary and secondary sources of information through manual and computerized techniques. Practical applications and use of principal bibliographic sources. Prerequisite: CHEM 2221.

1 credit

**CHEM 3230 STRUCTURE DETERMINATION BY SPECTROSCOPIC ANALYSIS**

Analysis of the information obtained from the main spectroscopic methods (Infrared, Nuclear magnetic resonance uni-y multidimensional, Masses and Ultraviolet) to determine the molecular structure of chemical compound. Prerequisites: CHEM 2212, 2222.

3 credits

**CHEM 3320 ANALYTICAL CHEMISTRY**

Study, statistical treatment and applications of quantitative analysis. Emphasis on volumetric, gravimetric and electroanalíticos methods. Includes, in addition, the fundamentals and the basic applications of the methods of spectroscopic analyzes and separation. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: CHEM 2212.

4 credits

**CHEM 3330 COMPUTATION AND CHEMICAL APPLICATIONS**

Use and handling of the computer in the field of chemistry, directed to the solution of problems, writing of technical reports and the search, access and handling of information on macromolecules. Emphasis on programming in a basic language, the use of sensors and use of computerized programs in the solution of problems and experiments in

chemistry, including the study of macromolecules. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: CHEM 2221, MATH 1500.

3 credits

### **CHEM 3350 PHARMACEUTICAL CHEMISTRY**

Biochemical processes and the manufacture of industrial pharmaceutical products. Prerequisite: CHEM 3320.

3 credits

### **CHEM 3351 LABORATORY OF PHARMACEUTICAL CHEMISTRY**

Techniques for manipulating and analyzing pharmaceutical products in a practice scenario. Requires 45 hours of lab.

1 credit

### **CHEM 3360 FOOD CHEMISTRY**

Study and state of dispersion of the components of foods: water, carbohydrates, proteins, lipids, enzymes, inorganic nutrients and those responsible for color and flavor. Study of the toxicology of compounds inherent to foods and those that are generated by means of their processing. Prerequisite: CHEM 2222.

3 credits

### **CHEM 3370 GREEN CHEMISTRY**

Introductory study of the basic chemical concepts and methods focused on process design and product synthesis that impacts the environment in a benign way. Includes the discussion and analysis of principles and the historical development of green chemistry, evaluating advantages and disadvantages. Analysis of examples of the application of green chemistry, at the academic and industrial levels by evaluating its economic and environmental impact. Prerequisites: CHEM 2222, 3320.

3 credits

### **CHEM 3380 INTRODUCTION TO NANOTECNOLOGÍA**

Theoretical analysis among the physical, chemical and structural characteristics of materials on a nanometric scale based on the differences between their properties and those of the materials of greater volume. Study of the formation and manipulation of nanotecnológicos materials. Includes applications in medicine, technology and the power sector. Prerequisites: CHEM 2222, 3320.

3 credits

### **CHEM 3390 BIOTECHNOLOGY FOR CHEMISTS**

Analysis of the fundamental concepts and the basic principles on the chemical manipulation of the nucleic acids with emphasis on the recombinant techniques of Ácido Desoxirribonucleico (ADN). Discussion of the biotechnological applications to systems of genetic expression, protein modification, industrial processes and biorremediación. Prerequisites: CHEM 2222, 3320, BIOL 1101.

3 credits

### **CHEM 3910 PHYSICAL CHEMISTRY: THERMODYNAMICS**

Theoretical and experimental study of the basic physical principles governing the properties and behavior of chemical systems with emphasis on the microscopic aspect. Includes thermodynamics and its applications to phase equilibrium and chemical equilibrium: non-ideal systems, real gases and solutions and electrochemistry. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: PHYS 3002, MATH 2252, CHEM 3320, CHEM 3330.

4 credits

### **CHEM 3920 PHYSICAL CHEMISTRY: QUANTUM AND KINETIC**

Theoretical and experimental study of basic physical principles governing the properties and behavior of chemical systems with emphasis on the microscopic aspect. Includes quantum mechanics and its application to the atomic and molecular structure, spectroscopy, and chemical kinetics. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: PHYS 3002, CHEM 2222, 3320, 3330, MATH 2252.

4 credits

**CHEM 3955 CHEMICAL SYNTHESIS**

Synthesis of chemical compounds and their characterization by instrumental methods. Emphasis on the application of spectroscopic methods and multistep synthesis. Requires 60 hours of lab. Prerequisites: CHEM 3230, 3320.

2 credits

**CHEM 397\_ SPECIAL TOPICS**

Analysis and discussion of specific topics in chemistry.

3 credits

**CHEM 4003 INDUSTRIAL CHEMISTRY**

Introduction to the chemical industry and its economic aspects; industrial processes emphasizing the application of chemical principles to the development of commercial products. Prerequisites: CHEM 2222, 3320.

3 credits

**CHEM 4070 GENERAL INORGANIC CHEMISTRY**

Structures and reactions of inorganic compounds. Course designed for secondary school teachers. Prerequisite: CHEM 3320.

3 credits

**CHEM 4160 INDUSTRIAL CHEMICAL ANALYSIS**

Application of standard methods of sample analysis, emphasizing instrumental procedures (optical spectroscopic and electrochemical methods) used in industrial chemical analysis. Designed for students in chemical technology. Requires 45 hours of lecture and 75 hours of closed lab. Prerequisites: CHEM 2222, 3320.

5 credits

**CHEM 4180 ADVANCED ORGANIC CHEMISTRY**

Mechanical, synthetic and stereochemical aspects of carbonations reactions, additions to multiple chains, reductions, oxidations, and pericyclic reactions. Emphasis on the retrosynthesis of compounds with optical activity. Prerequisite: CHEM 2222, 3230.

3 credits

**CHEM 4200 ADVANCED INORGANIC CHEMISTRY**

Study of the reactions, properties and applications of inorganic and coordination compounds. Analysis of the theories of valence bond, molecular orbitals and crystalline field. Solid state, symmetry and their applications. Prerequisite: CHEM 3920.

3 credits

**CHEM 4220 BIOCHEMISTRY**

Chemical reactions occurring in living matter, using modern techniques for the analysis of carbohydrates, lipids, proteins, nucleolar acids hormones and minerals. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: CHEM 2222, 3320.

4 credits

**CHEM 4240 INSTRUMENTAL ANALYTICAL CHEMISTRY**

Study of the components, foundations and applications of standard used instrumentation for separation, identification and quantitative analyzes of chemical substances. Includes spectroscopic and electrochemistry techniques of separation. Emphasis on the methods of optimization, calibration and validation commonly used in instrumental analysis. Discussion of the strengths and limitations of the different analysis methods and techniques. Requires 45 hours of lecture and 75 hours of closed lab. Prerequisites: CHEM 3230, 3320, 3330.

5 credits

**CHEM 4350 CHEMICALS 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 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 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 (COMU)****COMU 1000 INTRODUCTION TO COMMUNICATIONS**

Current theories of interpersonal group communication and mass communication. Analysis of the importance of communication in society.

3 credits

**COMU 1005 INTRODUCTION TO EDUCATIONAL TECHNOLOGY**

Introduction to the concepts and fundamentals of Educational Technology. Application and integration of the concepts and tools used in the production of instructional materials. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**COMU 1010 FUNDAMENTALS OF GRAPHIC COMMUNICATION**

Theories and practices in graphic design for effective communication, introduction to the different visual communication media with emphasis on their adequate use and on related terminology. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**COMU 1020 INTRODUCTION TO COMMUNICATION MEDIA**

Study and analysis of the history and development of mass media. Emphasis on the processes of communication, the evolution of the media with the arrival of new technologies and their impact on society.

3 credits

**COMU 1025 INTRODUCTION TO GRAPHIC PRODUCTION**

Study and application of the concepts and the basic techniques governing the graphic design industry. Introduction to the programs most used in graphic design. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**COMU 1031 PHOTOGRAPHIC TECHNIQUES 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 1060 ADMINISTRATION OF EDUCATIONAL TECHNOLOGY CENTERS**

Study of the administration theories that govern the management for Educational Technology Centers. Discussion and analysis of the processes used in the systematization of services and the production of instructional materials. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 1005.

3 credits

**COMU 2000 FUNDAMENTALS OF JOURNALISM**

The history, theory and practice of journalism; the responsibility of the journalist to society, the ethics of journalism.

3 credits

**COMU 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 corporate 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 2121 MEDIA WRITING I**

Study and application of the foundations and techniques used in the writing of the different script formats for the production of radio and television programs. Emphasis on the study of the terminology, the formats and the development of creative skills. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**COMU 2122 MEDIA WRITING II**

Study and application of the theoretical foundations and the basic techniques used for informative purposes. Emphasis on the analysis and writing of the informative note in accordance with the goals and the media in which it is issued or published. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2121.

3 credits

**COMU 2130 MEDIA PLANNING**

Theory and practice of the processes related to media production. Study and analysis of the production stages: pre-production, production and post-production. Emphasis on the design of proposals to produce concepts. Prerequisites: COMU 1020, 2121.

3 credits

**COMU 2223 SOUND PRODUCTION TECHNIQUES**

Study of the nature of sound and its behavior. Analysis of how sound is produced, travels and becomes different forms of energy. Theory and practice of the basic concepts and tools that are used in sound production. Requires 30 hours of lecture and 30 hours of lab.

3 credits

**COMU 2340 TELEVISION PRODUCTION TECHNIQUES**

Integration of the theory and practice of the techniques and the principles that govern television production. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: COMU 1031, 2130, 2223.

3 credits

**COMU 2511 COMPUTER GRAPHIC PRODUCTION I**

Application of the concepts and techniques governing graphic production using the main design programs in the market. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: COMU 1025, GEIC 1010.

3 credits

**COMU 2512 GRAPHIC PRODUCTION IN COMPUTER II**

Application of advanced techniques in graphic production. Analysis and application of the new market design trends. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2511.

3 credits

**COMU 2521 VOICE AND DICTION**

Theory and practice of news casting techniques. Emphasis on news commenting, commercials and radio and television documentaries in order to develop better voice control and projection. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2223.

3 credits

**COMU 2522 ADVANCED RADIO NEWSCASTING**

Integration of the theory and practice of the techniques associated with the radio news casting profession. Emphasis on advanced skills of ad-libbing and on the creation of a professional demonstration. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2521.

3 credits

**COMU 2610 ILLUMINATION IN PHOTOGRAPHY**

Study of illumination theories for photography with emphasis on the psychological and physical effects that light produces in human perception. Emphasis on techniques for the use and manipulation of natural as well as artificial environmental light, in addition to the appropriate use and handling of equipment used to illuminate photographic scenes. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: COMU 1032.

3 credits

**COMU 2611 RADIO PRODUCTION I**

Theory and practice of the techniques and the basic principles that govern production for the radio. Emphasis on the development of concepts, design of proposals and production of simple types of radio programming. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: COMU 2121, 2223, 2521.

3 credits

**COMU 2612 PRODUCTION FOR RADIO II**

Theory and practice of principles and advanced techniques that control different types of radio program production. Emphasis on the development of concepts, proposal design and production of advanced genres for radio production. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: COMU 2611.

3 credits

**COMU 2621 DIGITAL PHOTOGRAPHY 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 1031 and 2511.

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 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 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 audio-visual 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 TELEVISION FIELD PRODUCTION**

Application of the principles and the techniques that govern television field production. Practice in the design of concepts, use and handling of equipment used for exterior video films, and the process of digital edition for the production of concepts. Requires 30 hours of lecture and 60 hours of lab. Prerequisite: COMU 2340.

4 credits

**COMU 3130 ADVERTIZING GRAPHIC DESIGN**

Study of publicity from the graphic design point of view. Analysis of the components included in the advertising campaigns. Emphasis on the development and manipulation of images and texts used to create effective advertising campaigns. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2512.

3 credits

**COMU 3325 PHOTOJOURNALISM**

The use of photography to document events in written and electronic media. Requires 30 hours of lecture and 30 of lab. Prerequisites: COMU 1031, 2621.

3 credits

**COMU 3341 JOURNALISTIC TECHNIQUES AND STRUCTURE I**

Study and application of the journalistic genre with emphasis on the news coverage and writing of news articles, chronicles and editorials for the written press: newspapers and magazines. Exploration of the different methods to

obtain information as well as the formats for informative writing. Analysis of journalistic communication and its impact on public opinion. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: COMU 2122.

3 credits

### **COMU 3342 TECHNIQUES AND JOURNALISTIC STRUCTURE II: ELECTRONIC MEDIA**

Study and practice of the basic concepts of the news with emphasis on the writing of journalistic facts for electronic media: television, radio and Internet. Study of the different methods to obtain information and different formats for news editing. Analysis of the characteristics of the journalistic note according to the media in which it is issued or published. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: COMU 3341.

3 credits

### **COMU 3355 MEDIA INTERVIEWS**

Study of the different formats of media interviews for the media and the importance of establishing an effective relation between the interviewer and the interviewed person. Analysis of persuasive strategies to be used for an effective interview. Application of basic concepts in the development, the administration and the publication or issuance of interviews. Evaluation of interviews in agreement with their informative purpose and the media in which they will be distributed. Prerequisite: COMU 2122.

3 credits

### **COMU 3410 PRODUCTION OF NEWS FOR ELECTRONIC MEDIA**

Application of the concepts and theory related to the drafting and production of news for electronic media: radio, television and Internet. Emphasis on the writing of the news, the production of news reports and the evaluation of their effectiveness when transmitting the information. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: COMU 2611, 3040, 3342.

3 credits

### **COMU 3435 ILLUMINATION FOR VIDEO**

Application of specialized techniques in the design of interior as well as exterior lighting for video. Emphasis on advanced lighting skills, conceptualization of foreground and background lighting, assembly of lighting areas and diagnosis of video quality. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: COMU 3040.

3 credits

### **COMU 3520 ADVANCED TELEVISION PRODUCTION**

Application of advanced techniques in the production of television in the studio. The student will practice skills in planning, writing, production of video and sound, and graphic design for the development of complex programs. Emphasis on the functions of the production team and on the use and management of the equipment used during television production in the studio. Requires 30 hours of lecture and 60 hours of lab. Prerequisites COMU 2611, 3040.

4 credits

### **COMU 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 4320 LEGAL AND ETHICAL ASPECTS OF COMMUNICATION**

Study of the laws and the federal and state jurisprudence on ethical and legal problems that are relevant to the communication professions. Analysis of the codes of ethics relative to the communication professions along with the extension and limitations of freedom of expression. Prerequisite: Have passed 40 credits leading to the academic degree.

3 credits

### **COMU 4410 MEDIA MANAGEMENT**

Study of the administration theories that govern the management for massive mass media, as well as its organization and operation. Discussion and analysis of managerial problems which these media face and possible ways to solve them. Prerequisite: Have passed 40 credits leading to the academic degree.

3 credits

**COMU 4444 FUNDAMENTALS OF MEDIA RESEARCH**

Media research processes and techniques in the field of communications. Application of basic techniques of scientific-social research using interpersonal, group and massive media communication topics. Familiarization with research designs, sampling, the instruments for data collection, interpretation and the application of results. Planning and development of a research topic. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: MAEC 2221 and have passed 75 credits leading to the academic degree.

3 credits

**COMU 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 4510 MANAGEMENT OF RADIO STATIONS**

Study of the administrative and organizational aspects in radio stations. Analysis of the functions performed by the officials, emphasis on the administration of airtime, programming strategies and the organization of the radio business. Prerequisite: COMU 4410.

3 credits

**COMU 4910 SUPERVISED PRACTICE (BACHELOR'S DEGREE)**

Experience in a real work environment in an institution approved by the Department. It is necessary to have passed all the courses of the specialization with a minimum grade of C and have passed 60 credits in COMU courses. A minimum of 200 hours of practice is required during the academic term, besides attending lectures once a week coordinated by the practice advisor. Prerequisite: Approval of the Department Director.

4 credits

**COMU 4920 INTERNSHIP**

Application of theoretical knowledge to real situations in an organizational context; practice in real scenarios in the world of work. Prerequisites: Have approved 18 credits in specific course requirements and have approved all specialization courses with a grade point index of at least 2.50 and a general grade index of at least 2.00. Students are required to devote at least 225 hours to the internship and to attend several internship seminars.

6 credits

**COMU 4970 SEMINAR IN JOURNALISM**

Current topics in the area of journalism. Analysis of specific cases. Students must devote a minimum of 20 hours as observers in a real journalism work scenario or its equivalent. Prerequisite: Have approved 18 credits in the journalism specialization.

3 credits

**COMU 4973 SEMINAR IN PUBLIC RELATIONS AND ADVERTISING**

Current topics in the field of public relations and advertising. Analysis of specific cases. Students must devote a minimum of 20 hours per in a real public relations or advertising work scenario or its equivalent. Prerequisites: Have approved 18 credits in the public relations and advertising specialization.

3 credits

**COMU 4976 GRAPHICAL DESIGN AND ANIMATION**

Use of application programs of design in graphical edition and animation.

3 credits

### **COMU 4975 SEMINAR ON RADIO PRODUCTION ON LINE**

Application of appropriate operational processes and production of a radio transmitter through Internet in a real work context. Includes writing for the media, the manipulation of sound, locution and the production for the radio in the operation of an on line radio transmitter. Prerequisites: COMU 2522, 2612

3 credits

## **Courses in Computer Engineering (COEN)**

### **COEN 2210 INTRODUCTION TO PROGRAMMING**

Introduction to problem solving using the computer programming. Development of students' programming abilities and improvement of their efficiency in the application of computer concepts to their field of study. Emphasis on data types, functions, control structure, and basic data structures. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: MATH 1500, GEIC 1010.

4 credits

### **COEN 2220 ADVANCED PROGRAMMING**

Application of advanced programming techniques in solving engineering problem. Emphasis on the use of sub-programming, object-oriented programming and data structures for data collection, distribution, storage and sorting. Requires 45 hours of lecture and 30 of closed lab. Prerequisite: COEN 2210.

4 credits

### **COEN 2310 DISCRETE MATHEMATICS FOR COMPUTER ENGINEERING**

Study of forms and logical equivalences, circuits and their simplification, Boolean algebra, numerical systems, combinations, and substitutions. Emphasis on propositional logic. Includes the deductive process and rules of inference. Functions, Graph Theory and trees, difference equations of, vectors and linear transformations. Requires additional time in an open lab. Prerequisite: COEN 2220.

3 credits

### **COEN 3410 SOFTWARE DESIGN AND CONSTRUCTION**

Application of the software development cycle: analysis, design, testing, documentation and maintenance. Use of effective practices for software construction with emphasis on planning, the elimination of errors, design focused on the user, the design focused on interaction with hardware and quality assurance. Requires additional time in an open lab. Prerequisite: COEN 2220.

3 credits

### **COEN 3510 OPERATING SYSTEMS**

Design and implementation of fundamental concepts of operating systems with emphasis on hardware. Management of processor, memory, resources and file system. Analysis of installation, administration and security concepts in operating systems. Requires 45 hours of lecture and 30 hours of closed lab. Prerequisite: COEN 2220.

4 credits

### **COEN 4412 DESIGN OF USER INTERFACE AND PROTOTYPES**

Design, implementation and evaluation of graphical interfaces. Techniques and methods focused on the Human-Computer Interaction and Usability Engineering. Development of skills and strategies for the design of systems focused on the user. Study of the users' experience levels and interaction styles. Knowledge and development of different types of prototypes using the techniques learned. Requires 45 hours of lecture and 30 hours of closed lab. Prerequisite: COEN 3410.

4 credits

### **COEN 4413 DESIGN OF EXPERT SYSTEMS**

Expert system application with emphasis on the field of engineering. Acquisition and representation of knowledge, inference motor, reasoning strategies, hybrid expert systems. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: COEN 3410, 4510.

4 credits

**COEN 4420 COMPUTERIZED INFORMATION SYSTEMS DESIGN**

Analysis and design of information systems. Design of databases. Emphasis on logical models of data and on relational database management systems. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: COEN 3410.

4 credits

**COEN 4510 COMPUTER ARCHITECTURE**

Analysis of computer organization and architecture. Emphasis on the set of instructions, addressing modes, memory, interruptions, registries and structure of the processing unit. Development of programs in assembly language. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: ELEN 3320 and COEN 2220.

4 credits

**COEN 4530 DESIGN AND CONSTRUCTION OF COMPILERS**

Analysis and application of the design and construction of compilers: lexicon, robot, parsing techniques, grammar free of context, tables of symbols, syntax directed translations and other related topics. Requires 45 hours of lecture and 45 hours in a closed lab. Prerequisite: COEN 3510.

4 credits

**COEN 4535 INTEGRATED COMPUTER SYSTEMS**

Integrated systems analysis and design. Emphasis on architecture and systems programming based on communication and interface between different hardware and computers devices. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: ELEN 4010, 4410.

4 credits

**COEN 4540 PARALLEL COMPUTATION DESIGN**

Design of computer programming in parallel and distributed. Emphasis on multiprocessing, parallel programming. Includes interconnection, communication and systems synchronization. Paradigms and models in parallel. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: COEN 4510.

4 credits

**COEN 4910 PRACTICUM IN COMPUTER ENGINEERING**

Practical experience in computer engineering with private industry or the government, supervised by a coordinator. Preparation of a comprehensive report based on real job experience in the field of computer engineering under the supervision of a faculty member. Requires a minimum of 160 work hours. Prerequisites: Authorization of the department director.

4 credits

**Courses in Computer Science (COMP)****COMP 1010 INTERNET AND ITS TECHNOLOGIES**

History of Internet. Terminology used in Internet. Components for telecommunication between computers. Characteristics and operations of browsers. Use of search engines. Management of files through Internet. Use of e-mail. Design of simple web pages using applications. Connections to Internet through applications such as word processors, electronic spreadsheets, or presentation applications. Closed laboratory.

3 credits

**COMP 2015 WEB PAGE DESIGN**

Discussion of concepts and strategies for the analysis and design of sites and pages used through Internet. Analysis, design, and programming of interactive pages using code generators for HTML, DHTML and JavaScript. Includes design and adaptation of graphical elements and multimedia for interactive pages. Emphasis on design principles and integration of visual elements that use vectorial animation. Closed laboratory. Requires additional time in an open laboratory. Prerequisite: COMP 1010.

3 credits

**COMP 2060 MICROCOMPUTER REPAIR AND MAINTENANCE**

Physical and peripheral components of computer systems. Comparative study of different technologies used in the components of computer systems. Installation of application programs. Preventive maintenance of the equipment, hardware configuration and installation of personal computers. Diagnosis and solution of problems related to the operation of hardware. Computer updating. Requires 30 hours of lecture and 30 hours of closed lab.

3 credits

**COMP 2110 INTRODUCTION TO COMPUTER SCIENCE**

Analysis of numerical systems and representation of data, formulation and evaluation of logical functions, arithmetical and logical expressions. Includes an introduction to circuit logic and the basic areas of computer sciences, such as: programming languages, operating systems and data bases. Requires additional time in an open laboratory. Corequisite GEIC 1010, if it has not been approved previously.

3 credits

**COMP 2120 PROGRAMMING LOGIC**

Analysis, design, evaluation and representation of algorithms. Includes flow charts and pseudo codes. Introduction to programming. Class design with UML. Emphasis on the basic structures of data, algorithms for searches and ordering. Lecture/Lab. Requires additional time in an open lab.

3 credits

**COMP 2300 VISUAL PROGRAMMING**

Analysis, design and implementation of programs through the use of a visual programming language. Includes the administration of objects, their properties, events and methods. Emphasis on the definition of variables, types of data, registers and other programming structures, subprograms, iteration structures, decision, and selection. Closed laboratory. Requires additional time in an open laboratory. Prerequisites: COMP 2110, 2120.

3 credits

**COMP 2315 STRUCTURED PROGRAMMING**

Discussion of the fundamentals of programming of data types, declarations, control structures and subprograms. Includes modular programming and data transfer between modules, capability of variables, basic data structures, sets, registries, archives and pointers. Design, coding, verification, debugging errors and documentation. Requires 30 hours of lecture and 30 hours of closed laboratory. Requires additional time of open laboratory. Prerequisites: COMP 2110, 2120.

3 credits

**COMP 2320 INTRODUCTION TO JAVA PROGRAMMING**

Introduction to the basic concepts of Java language: types of data and flow control. Fundamental structures of programming, classes, objects, and methods. Graphic interfaces, Applets and 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**

Introduction to object-oriented languages. Includes objects, classes, messages, instances, variables, capsuling, polymorphism, heritage, methods, expressions, blocks, collections, flows, and applications. Requires additional time in an open laboratory. Prerequisite: COMP 2300.

3 credits

### **COMP 2501 DISCRETE COMPUTATIONAL STRUCTURES I**

Theory and algebra of sets. Applications of one set in another, transformations and substitutions. Relations of equivalencies, order and partial order. Propositional logic. Conditionals: condition of sufficiency, necessity and of sufficiency and necessity. Deductive process and inference rules. Boolean, Karnaugh maps and combination circuits. Requires additional time in an open lab. Prerequisite: COMP 2315.

3 credits

### **COMP 2502 DISCRETE COMPUTATIONAL STRUCTURES II**

Theory of graph and trees. Flow webs. Counting and combinatorial analysis. Recurrence relations: Difference equation of first and second order. Algebraic structures of simple and double composition. Scalar and vectorial fields. Lineal transformations. Finite state machines. Requires additional time in an open lab. Prerequisite: COMP 2501.

3 credits

### **COMP 2550 LOGICAL AND FUNCTIONAL PROGRAMMING**

Fundamental concepts: Atoms, lists, expressions, basic functions, logic operations, recursions and iterations, advantages and disadvantages of types. Logic clause and predicates of first order. Creation of knowledge bases and their access. Goals, binding, and backtracking. Cut operation. Requires 30 hours of lecture and 30 hours in a closed lab. Requires additional time in an open lab. Prerequisite: COMP 2501.

3 credits

### **COMP 2555 APPLICATIONS IN RELATIONAL DATABASES**

Introduction to relational database programming for solving problems of updating, editing, summaries and reports in enterprises. Includes the necessary skills for installing, configuring and adapting a well-accepted commercial relational database to the user's particular needs. Requires 45 hours of lecture-lab in a closed lab. Requires additional time in an open lab. Prerequisite: COMP 2300.

3 credits

### **COMP 2600 BUSINESS PROGRAMMING**

Introduction to the data-processing environment. Basic file organization. Master and transaction files. Operations with file creation, update, restoration, merge and back-up copies. Design and generation of reports through a commercially oriented programming language. Requires additional time in an open lab. Prerequisites: COMP 2300, 2315.

3 credits

### **COMP 2610 WEB PROGRAMMING**

Design, development and implementation of commercial applications for the WEB. Use of programming languages for WEB scripting. Programming from the server and client aspects. Includes the design of forms for the capture, validation and presentation of data. Emphasis on transaction processing with data bases in client-servant environments. Closed laboratory. Requires additional time in an open lab. Prerequisites: COMP 2015, 2600.

3 credits

### **COMP 2900 DATA STRUCTURES**

Design and implementation of objects from capsulated data and their operations. Includes handling of data in sequential and dynamic structures, solution of problems with basic abstract data types such as, stacks, queues, arrays, trees and graphs. Emphasis on techniques for handling data such as searching and ordering. Implementation of different data structures through the use of recursive and non-recursive processes. Use of an object oriented programming language. Requires additional time in an open lab. Prerequisites: COMP 2400, 2501.

3 credits

**COMP 2970 SEMINAR FOR THE ASSOCIATE DEGREE IN APPLIED SCIENCE IN COMPUTER SCIENCE**

Research and study of important topics in computer science. Practice in skills and knowledge developed in the study of the Associate Degree in Applied Science in Computer Science. For Associate Degree candidates only.

3 credits

**COMP 3010 FILE MANAGEMENT AND ORGANIZATION**

Characteristics of data files storing devices. Advanced techniques of physical and logical organization of files. File sorting and merging. Introduction to data bank concepts. Applications and development using a business-oriented, high-level language. Requires additional time in an open lab. Prerequisite: COMP 2600.

3 credits

**COMP 3200 COMPUTER ORGANIZATION AND ASSEMBLER LANGUAGE**

Digital systems. Organization and structure of main components in computer systems. Representation and manipulation of numerical and non-numerical data at machine level. Comparison between different instruction sets and corresponding directional modes. Fetching and operations execution, depending on architecture. Interruption concepts. Access-and memory management techniques, registers and peripherals. Requires additional time in an open lab. Prerequisite: COMP 2900.

3 credits

**COMP 3320 THE COMPUTER IN TEACHING**

Computer languages developed to teach computer skills to children (LOGO, PILOT and others). “Turtle” graphics. Set of instructions, programming and comparative language model to develop instructional modules. Evaluation of selected educational programs and discussion of the applied psychological principles and other attributes that have made such programs attractive and adequate for teaching. Requires additional time in an open lab.

3 credits

**COMP 3400 SOFTWARE ENGINEERING**

Analysis of the phases in the implementation and development cycle of software: specifications, design, verification, validation, documentation and maintenance. Emphasis on efficiency measures and reengineering techniques. Requires additional time in an open lab. Prerequisite: COMP 2900.

3 credits

**COMP 3410 COMPUTER SECURITY**

Analysis of the fundamentals necessary to understand the risks and threats against computational systems. Includes the study of the vulnerability of possible attacks of computational systems. Emphasis on the use of the controls and protection methods necessary to guarantee the suitable operation of the systems. Prerequisite: COMP 3200.

3 credits

**COMP 3500 OPERATING SYSTEMS**

Analysis of the concepts and functions of operating systems. Includes multiprogramming, multithreads, multiprocessing and timesharing. Emphasis on the administration of resources, such as: processors, memory and peripherals. Discussion of the administration of real and virtual memory, file systems, security and protection. Requires additional time in an open lab. Prerequisite: COMP 3200.

3 credits

**COMP 3600 COMPUTER GRAPHICS**

Basic principles and techniques of computer graphics: point plotting, clipping, windowing, viewports, polygons and perspectives. Introduction to graphic nucleus. Graphics for data presentation. Linear transformations: rotation, transfer and change of scales. Animation techniques. Deletion of lines and hidden surfaces. Requires additional time in an open lab. Prerequisites: COMP 2502, 2900.

3 credits

### **COMP 3800 PROGRAMMING LANGUAGES**

Analysis of the evolution of programming languages: data types, operations, verification of types, control structures, control and access of data, administration of memory, syntax, semantics and content binding. Emphasis on the introduction to alternating paradigms in programming languages. Includes comparison in implementing different concepts among several programming languages. Requires additional time in an open lab. Prerequisite: COMP 3200.

3 credits

### **COMP 3850 THEORY OF DATABANKS**

Basic objectives, functions, models, components and applications for databank systems. Analysis of the different data models. Considerations on the design and implementation of a databank. Operational requirements: performance, integrity, security, concurrence and retrieval. Requires additional time in an open lab. Prerequisites: COMP 2900.

3 credits

### **COMP 397\_ SPECIAL TOPICS**

Analysis of current topics relevant to the computer science area. Prerequisite: Authorization from the Director of the Department.

1-6 credits

### **COMP 4000 MICROPROCESSORS ARCHITECTURE AND PROGRAMMING**

Microprocessors of 16, 32 and 64 binary digits. Large scale integrated circuits. Devices, interfacing, interrupt input and output, memory and bus structures. Programming and design of control systems based on microprocessors. Requires additional time in an open lab. Prerequisites: COMP 3200.

3 credits

### **COMP 4160 PARALLEL PROCESSING**

Evolution of parallel processing in computation systems. Parallel-processing architecture. Pipeline principles. Vector and Matrix processing. Techniques for developing control algorithms for concurrent multiple processing. Applications of multi-process systems will be discussed. Requires additional time in an open lab. Prerequisites: COMP 3500, 4000.

3 credits

### **COMP 4200 TELEPROCESSING AND NETWORKS**

Fundamental concepts of communication, classification, topology, analysis, design, implementation, data communication network security and communication architecture, including the OSI model. Communication protocols and distributed processing. Hardware equipment evaluation and software programs of high commercial acceptance networks. Requires additional time in an open lab. Prerequisites: COMP 2502, 3500.

3 credits

### **COMP 4220 ADVANCED TELEPROCESSING AND NETWORKS**

Analysis of the concepts of modulation with emphasis on PSK and FSK, compression and decompression of data, Packet Switched Networks, Circuit Switched Networks, ATM, ISDN, private networks, dates encryption and communication safety. Requires additional time in an open lab. Prerequisite: COMP 4200.

3 credits

### **COMP 4230 INSTALLATION AND CONFIGURATION OF PHYSICAL COMPONENTS FOR NETWORKS**

Installation and configuration of physical components for a network. Includes the study of the basic concepts and preparation of physical transmission means such as optical fiber, coaxial cable and Twisted Pair. Requires additional time in an open lab. Prerequisite: COMP 4220.

3 credits

**COMP 4235 OPERATING SYSTEMS FOR NETWORKS**

Concepts and functions of operating systems for networks with emphasis on Unix. Advanced concepts of TCP/IP. Requires additional time in an open lab. Prerequisites: COMP 3500, 4200.

3 credits

**COMP 4240 NETWORK MANAGEMENT**

Basic functions of planning, organizing, directing and controlling a computer network. Structures and procedures for evaluating and selecting software for implementing a network. Prerequisite: COMP 4230.

3 credits

**COMP 4250 DATABASE DEVELOPMENT, IMPLEMENTATION AND ADMINISTRATION**

Advanced concepts in the design of databases. Development and implementation of a relational database. Design of Entity-Relation models (E-R). Documentation, evaluation, and optimization. Maintenance and safety. Closed laboratory. Requires additional time in an open lab. Prerequisite: COMP 3850.

3 credits

**COMP 4270 AUTOMATA THEORY**

Analysis of automata concepts, finite automata and finite memory, transition tables, Meally and Moore models, strongly connected machines, reduced diagrams, component of state diagrams and infinite automata. Application of calculable functions by means of Turing. Discussion of the operation of programmable machines, programs, universal machines for a programmable computer and the Post System for the administration of symbols. Prerequisite: COMP 2502.

3 credits

**COMP 4280 COMPILERS**

Design and construction of lexical and syntax analyzers, parsing techniques, intermediate code generation. Management of symbol tables, object code optimization and generation in the design of computers. Requires additional time in an open lab. Prerequisites: COMP 3800, 4270.

3 credits

**COMP 4420 SYSTEMS DESIGN AND ANALYSIS**

Description of systems and systems analysis environment. Basic tools for design and analysis, and applications to the systems life cycle and development. Project-management principles and methods. Prerequisite: COMP 3400.

3 credits

**COMP 4430 SYSTEMS DEVELOPMENT AND IMPLEMENTATION**

Determination of programming tools. Prototype elaboration, testing, debugging and validation. Processes for change; the techniques used for systems implementation. Systems documentation and users operation manual. Systems evaluation and optimization. Requires additional time in an open lab. Prerequisite: COMP 4420.

3 credits

**COMP 4480 ARTIFICIAL INTELLIGENCE**

History, fundamentals and applications of artificial intelligence. State space, heuristic search strategies and search control (depth first, breadth first). Representation of knowledge. Reasoning strategies (forward, backward). Knowledge engineering: production rules, diffuse logic. Requires additional time in an open laboratory. Requires 30 hours of lecture and 15 hours in a closed lab. Prerequisites: COMP 2550, 2900.

3 credits

**COMP 4500 EXPERT SYSTEMS**

Analysis of engineering of knowledge and artificial intelligence. Includes the study of forward and backward chaining, systems based on heuristic rules, the connection with data bases, and the use of programming environment. Emphasis on the study of the functions of an expert system: acquisition of knowledge, based on semantic and neural frameworks. Requires additional time in an open lab. Prerequisite: COMP 4480.

3 credits

**COMP 4580 INTRODUCTION TO ROBOTICS**

History and evolution of automatons (robots). Robotics and applications. Manipulators (arms), actuators, and effectors, controllers, classification of robots. Homogeneous transformations. Direct and inverse kinematics. Dynamic and kinematic modelings. Internal and external sensors. Artificial-vision systems; robotic languages; job planning. Programming techniques of robots. Requires additional time in an open lab. Prerequisite: COMP 3200.

3 credits

**COMP 4600 COMPUTER ARCHITECTURE**

Analysis of memory hierarchy, access strategies, internal and external memories, series and parallel processors, multiprocessing, processors of regular order, analysis of cost and considerations in computer design. Prerequisite: COMP 3200.

3 credits

**COMP 4910 INTERNSHIP AND PROFESSIONAL ETHICS**

Experience in real-work environment in institutions approved by course supervisor. Development and presentation of project in computer science under the supervision of a faculty member. Seminars on professional ethics. Course requires the students to work for at least 120 hours in internship and attend seminars related to professional ethics. Prerequisites: COMP 4200, 4420.

3 credits

**Courses in Computerized Management Information Systems and Information Technology (CMIS)****CMIS 1100 INTRODUCTION TO INFORMATION SYSTEMS**

Discussion of the components, concepts, principles and ethical aspects that govern information systems. Use of spreadsheet programs and management of databases in the solution of business problems. Requires a total of 45 hours of lecture/lab. Requires additional time in an open lab.

3 credits

**CMIS 1200 PROGRAMMING ALGORITHMS**

Discussion of programming algorithms. Application of means for the development of logic in the solution of a problem. Description of basic structures such as sequence, decision and repetition. Includes programming logic for the management of arrays and archives.

3 credits

**CMIS 2301 COBOL I**

Study of the programming language COBOL (Common Business Oriented Language) in structured form, the syntax of programming, documentation, data description, organization and techniques and business applications. Requires additional time in an open lab. Prerequisite: CMIS 1200.

3 credits

**CMIS 2310 VISUAL PROGRAMMING IN INFORMATION SYSTEMS**

Analysis, design and implementation of programs by using a visual programming language. Emphasis on managing objects, their properties, events and methods. Includes the development of programming structures and subprograms. Requires a total of 45 hours of lecture/lab. Requires additional time in an open laboratory. Prerequisite: CMIS 1200.

3 credits

**CMIS 2450 INTRODUCTION TO INTERNET IN THE ENTERPRISE**

Discussion of the technical foundations of the structure and operation of the Internet as a global service network to the business information systems. Includes fundamental concepts for the management and practical application of the services and resources that Internet offers to business. Design, development and publication of business pages in Internet sites. Requires a total of 45 hours of lecture/lab. Requires additional time in an open lab.

3 credits

**CMIS 3130 DESIGN AND MANAGEMENT OF DATABASES**

Analysis of the basic foundations and application of a database management system and its aspects. Emphasis on the design and management of databases by using different models, methodologies and environments. Requires a total of 45 hours of lecture/lab. Requires additional time in an open lab. Prerequisite: CMIS 2310.

3 credits

**CMIS 3300 RPG**

Production of reports by means of RPG (Report Program Generator), file maintenance and processing managerial information. Requires additional time in an open lab. Prerequisites: CMIS 2200, ACCT 1161.

3 credits

**CMIS 3330 C LANGUAGE**

Analysis of Programming Language C and its usefulness in solving problems beginning with the creation of compilers to modulation. Prerequisite: CMIS 1200.

3 credits

**CMIS 3350 TELECOMMUNICATIONS AND BUSINESS NETWORKS**

Analysis of the basic concepts of telecommunications and networks from an organizational perspective. Discussion of technologies, equipment and network systems. Prerequisite: CMIS 2450.

3 credits

**CMIS 3400 ELECTRONIC BUSINESSES**

Analysis of the theoretical and practical foundations of electronic businesses. Discussion of business strategies and the integration of information systems to the new economy and technology in the Internet. Examination of the different models of electronic businesses. Requires a total of 45 hours of lecture/lab. Requires additional time in an open lab. Prerequisite: CMIS 2450.

3 credits

**CMIS 3420 INFORMATION SYSTEMS ANALYSIS AND DESIGNS**

Analysis of methodologies for the design of information systems. Emphasis on the application of means and techniques in the life cycle of the development of an information system. Requires 45 additional hours in an open lab. Prerequisite: CMIS 3130.

3 credits

**CMIS 3570 INTERNET PROGRAMMING**

Analysis of the concepts, structures and syntax of a programming language for Internet to be used in the solution of business problems. Requires 45 hours of lecture/lab. Requires a total of 45 additional hours in an open lab. Prerequisite: CMIS 2450.

3 credits

**CMIS 4320 INFORMATION SYSTEMS DESIGN**

The sequence of procedures, activities and considerations for the design phase of an information system. Tools and techniques to support the design process. Requires additional time in an open lab. Prerequisite: CMIS 3320.

3 credits

**CMIS 4500 AUDITING AND SECURITY IN INFORMATION SYSTEMS**

Analysis of auditing procedures and methods applied to information systems. Includes security aspects and physical and logical controls. Prerequisite: CMIS 3420.

3 credits

**CMIS 4610 INFORMATION SYSTEMS FOR PLANNING ENTERPRISE RESOURCES**

Design of process and implementation models of information systems and knowledge of an application that handles integrated information systems for the planning of enterprise resources. Requires a total of 45 hours of lecture/lab. Requires additional time in an open lab. Prerequisites: CMIS 3420, ACCT 1162.

3 credits

**CMIS 4870 MANAGEMENT OF INFORMATION SYSTEMS PROJECTS**

Analysis of the organization, planning, and control of information systems projects. Discussion of the scope of the management of the project itineraries and resources. Practice in the use of project management programs. Requires a total of 45 hours of lecture/lab. Prerequisite: CMIS 4500.

3 credits

**CMIS 4915 PRACTICUM**

Supervised work experience in the field of computerized management information systems under the supervision of a faculty member. Students are required to devote at least 135 hours to develop the work or project assigned in lieu of the practicum.

3 credits

**CMIS 4970 SEMINAR IN INFORMATION SYSTEMS**

Current topics that may give a view of future trends in computer technology and their interactions with information systems. Areas of the great demand such as communications, artificial intelligence, the optimization of operations and the interaction of media in a changing society in search of new technological alternatives to meet the challenges of an organizational environment in continuous evolution. Prerequisite: have approved 30 credits in core courses and in major courses.

3 credits

**Courses in Computerized Tomography and Magnetic Resonance (CTMR)****CTMR 3030 PHYSICAL PRINCIPLES OF COMPUTERIZED TOMOGRAPHY AND MAGNETIC RESONANCE**

Study of the physical principles of computerized tomography and magnetic resonance. Methods of acquiring and processing data, the components of the system for acquiring and reconstruction of images, the programs and technical parameters used in the acquisition of images including the equipment and quality assurance are discussed. Prerequisites: RATE 2231, 2232.

3 credits

**CTMR 3040 PROCEDURES AND IMAGES I**

Study and discussion of tracking techniques related to the criteria for the acquisition of high quality images applied to the central nervous system. Includes the study of anatomy, positioning criteria, protocol options and the associated pathology. Prerequisite: RATE 2250.

3 credits

**CTMR 3041 PROCEDURES AND IMAGES II**

Study and discussion of tracking techniques related to the criteria for the acquisition of high quality images applied to the neck, thorax and mediastinum. Includes the study of anatomy, positioning criteria, protocol options and the associated pathology. Prerequisites: CTMR 3030, 3040.

3 credits

**CTMR 4020 PROCEDURES AND IMAGES III**

Study and discussion of tracking techniques related to the criteria for the acquisition of high quality images applied to the area of the abdomen and pelvis. Includes the study of anatomy, positioning criteria, protocol options and the associated pathology. Prerequisites: CTMR 4911, 3041.

3 credits

**CTMR 4021 PROCEDURES AND IMAGES IV**

Study and discussion of tracking techniques related to the criteria for the acquisition of high quality images applied to the musculoskeletal regions. Includes the study of anatomy, positioning criteria, protocol options and the associated pathology. Prerequisites: CTMR 4912, 4020.

3 credits

### **CTMR 4911 INTERNSHIP IN COMPUTERIZED TOMOGRAPHY I**

Clinical experience aimed to develop and improve the professional skills acquired in previous courses for making images of the head, neck and spine by computerized tomography and magnetic resonance. The student will be under the supervision of a qualified specialist in computerized tomography and magnetic resonance. One hundred eighty (180) hours of practice. Prerequisites: CTMR 3030, 3040.

3 credits

### **CTMR 4912 INTERNSHIP IN COMPUTERIZED TOMOGRAPHY II**

Clinical experience aimed to develop and improve the professional skills acquired in previous courses for making images of the thorax, mediastina and the muscular-skeletal system by computerized tomography and magnetic resonance. The student will be under the supervision of a qualified specialist in computerized tomography and magnetic resonance. One hundred eighty (180) hours of practice. Prerequisites: CTMR 4911, 3041.

3 credits

### **CTMR 4913 INTERNSHIP IN COMPUTERIZED TOMOGRAPHY III**

Clinical experience aimed to develop and improve the professional skills acquired in previous courses for making images of the area of the abdomen and pelvis by computerized tomography and magnetic resonance. The student will be under the supervision of a qualified specialist in computerized tomography and magnetic resonance. One hundred eighty (180) hours of practice. Prerequisites: CTMR 4912, 4020.

3 credits

## **Courses in Conflict Mediation (MEDI)**

### **MEDI 4510 INTRODUCTION TO ALTERNATIVE METHODS FOR CONFLICT RESOLUTION**

Study of the alternative methods for conflict resolution and their use within the legal system. Emphasis on the conceptualization of the conflict phenomenon, the advantages and limitations of mediation versus the adversative traditional methods. Includes the attitude of the mediation approach, self-analysis and self-reflection on how to use this method as it applies to the diverse areas of social structure and functions.

1 credit

### **MEDI 4520 LEGAL AND CONSTITUTIONAL BASES THE CONFLICT MEDIATION**

Study of the legal and constitutional bases that provide validity to conflict mediation as an alternative process of the judicial system. Includes the special and other pertinent laws, and the legal terminology related to the alternative methods for the conflict resolution. Prerequisite: MEDI 4510.

1 credit

### **MEDI 4530 COMMUNICATION SKILLS AND EMOTIONAL MANAGEMENT**

Analysis of the basic principles of interpersonal communication during the process of mediation intervention and negotiation. Emphasis on the processes of collecting the necessary information about the parties to be able to make a well informed intervention, and the basic principles of the emotional management of the parties in conflicts, during the mediation process. Prerequisite: MEDI 4520.

1 credit

### **MEDI 4540 STRUCTURE AND PROCESSES OF THE CONFLICT MEDIATION**

Analysis of the structures, procedures and stages of the process of conflict mediation. Includes conciliation techniques and strategies, negotiation, persuasion, bargaining and the attainment of settlements. Emphasis on the ethical responsibility of the mediator and the management of diverse matters in the process: the communication between the mediator and the Court of Justice, as well as the role of the experts. Prerequisite: MEDI 4530.

2 credits

### **MEDI 4550 DOMESTIC VIOLENCE AND ITS IMPLICATIONS IN MEDIATION**

Analysis of the violence phenomena that affect the family and how these can influence in an effective negotiation. Emphasis on the protocols and processes according to the Regulations of the Alternative Methods for Conflict

Resolution, as well as the established laws and professional ethics. Include the signs and symptoms associated with domestic violence during the relational communication of the parties in mediation. Prerequisite: MEDI 4540.

1 credit

#### **MEDI 4560 APPLICATION AND BASIC PRACTICE IN CONFLICT MEDIATION**

Analysis of the process of conflict resolution through mediation in diverse scenarios. Emphasis on case conceptualization, the basic principles and fundamental skills, as well as the stages of the process. Developments of hypothetical cases through role playing and analysis of real situations. Prerequisite: MEDI 4550.

1 credit

#### **MEDI 4571 STRUCTURES AND MODELS OF MEDIATION IN FAMILY SYSTEMS**

Study of the different styles, configurations and models of the contemporary family. Discussion of the main models, paradigms and techniques of mediation intervention for the resolution of conflicts in family systems. Study of systemic, structural, transformative, linear and narrative-circular models. Application of the conceptualization, relevant intervention, evaluation, and prevention strategies to situations confronting families.

2 credits

#### **MEDI 4572 CONFLICT MEDIATION IN DIVORCE CASES**

Study of mediation in cases of marriages in a divorce process. Emphasis on the family mediator's role as part of the legal system and the alternative methods in light of the laws and system of Puerto Rico. Includes the laws and jurisprudence, the norms, rules, public policy and protocols related to divorce, the division of marital property, child support laws, and parental child relations, among others. Prerequisite: MEDI 4571.

2 credits

#### **MEDI 4573 CONFLICT MEDIATION WITH FAMILIES AND COUPLES THAT STAY TOGETHER**

Study of the diverse intervention methods with couples and families that remain together. Emphasis on the perception of cases based on therapeutic mediation and the evaluation of individual, couples or family needs profiles. Includes negotiation, conciliation, agreements, and the reestablishment of interpersonal relations. Prerequisite: MEDI 4572.

2 credits

#### **MEDI 4574 DOMESTIC LEGAL CONFLICT MEDIATION**

Study of mediation of intra-family conflicts with members of the immediate family nucleus and the extended family members. Emphasis on the laws and relative jurisprudence in cases of donations, inheritances and estates. Includes the norms, rules, public policies, protocols, as well as the role of the family mediator as part of the legal system. Prerequisite: MEDI 4573.

2 credits

#### **MEDI 4575 APPLICATION AND PRACTICE CASES IN FAMILY CONFLICTS**

Design, implementation, development and evaluation of the mediation process in family cases. Development of intervention plans, conceptualization of cases and practices of hypothetical situations. Includes the mediation process at different levels and different conflict types, and the practice of the stages of the process of mediation, negotiation and conciliation through role playing. Requires the final presentation of an applied and practical work. Prerequisite: MEDI 4574.

2 credits

#### **MEDI 4581 CONCEPTUAL FRAMEWORK OF SCHOOL MEDIATION**

Analysis of the conceptual frameworks on which the mediation processes in the school scenario are built. Emphasis on the study of integral, proactive, multidimensional conflict resolution programs. Includes the differentiation and convenience of the transformative frameworks in comparison with traditional punitive and adversative methods.

2 credits

#### **MEDI 4582 CONFLICT RESOLUTION PROGRAMS AND SCHOOL MEDIATION**

Analysis of the conflict resolution programs of in the school community. Emphasis on the study of the approaches, rational principles and bases. Includes the suppositions of the programs and the essential elements of the implementation process of school mediation programs. Prerequisite: MEDI 4581.

2 credits

**MEDI 4583 CONFLICT RESOLUTION OF IN THE ELEMENTARY SCHOOL K-6**

Analysis of programs that take care of handling conflict situations in the school communities in grades K-6. Emphasis on the learning of behaviors of healthy social coexistence, through suitable methods of creative solution of conflicts. Includes emotional management and the reestablishment of interpersonal relations. Prerequisite: MEDI 4582.

2 credits

**MEDI 4584 PEER MEDIATION IN JUNIOR AND HIGH SCHOOLS 7-12**

Analysis of the process of implementation, development and evaluation of mediation programs for couples in the school scenario, with adolescents. Emphasis on the design of training for student mediators. Includes the study of the mediators' profile, the creation and operation of conciliation committees, and the registry of the mediation interventions realized in the program. Prerequisite: MEDI 4583.

2 credits

**MEDI 4585 APPLICATION AND PRACTICE CASES IN SCHOOL CONFLICTS**

Design, implementation, development and evaluation of school mediation programs. Development of intervention plans, conceptualization of cases and practices of hypothetical situations. Includes the process of conflict resolution at different levels of the school system and practice in the process of school mediation through role playing. Requires the final presentation of an applied and practical work. Prerequisite: MEDI 4584.

2 credits

**MEDI 4591 MODELS AND LAWS OF LABOR RELATIONS**

Analysis, discussion and familiarization with the current labor laws, the administrative mediation. Emphasis on the identification of the causes of conflicts and their management in the work environment. Includes the use of tools to implement alternative methods programs for conflict resolution in the work scenario.

2 credits

**MEDI 4592 LABOR-MANAGEMENT CONFLICT MEDIATION**

Analysis of mediation of worker-employer conflicts. Emphasis on the differentiation between work and non-work conflicts. Includes the use of mediation techniques to arrive at satisfactory agreements and the development of mediation programs after obtaining a quality work environment and effective interpersonal relations. Prerequisite: MEDI 4591.

2 credits

**MEDI 4593 COLLECTIVE BARGAINING**

Analysis of bargaining as a tool in the work environment in its worker-employer relations. Emphasis on the process of collective bargaining and the management of the collective agreement between worker unions and employers, in the private and public sectors. Includes the diversity of variants in bargaining and the necessary adjustments in conformity with the conflict. Prerequisite: MEDI 4592.

2 credits

**MEDI 4594 EXECUTIVE-MANAGERIAL CONFLICT MEDIATION**

Analysis of the basic principles of conflict resolution in the managerial area. Emphasis on the development of executive mediation skills applied to the interpersonal and work relations within the company, industry or organization. Includes the nature of the culture, dimensions, structure and organizational competency, as well as the structure and the strategic conflict management by the leadership personnel within the organization. Prerequisite: MEDI 4593.

2 credits

**MEDI 4595 APPLICATION AND PRACTICE CASES OF LABOR CONFLICTS**

Design, implementation, development and evaluation of conflict resolution programs in the work scenario. Emphasis on the development of intervention plans, conceptualization of cases and practice of hypothetical situations. Includes the conflict resolution process at different levels of the organizational system and practice through role playing. Requires the final presentation of an applied and practical work. Prerequisite: MEDI 4594.

2 credits

## **Courses in 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 (CJUS)**

### **CJUS 1000 INTRODUCTION TO CRIMINOLOGY**

Discussion of the principles and foundation of the etiology of crime and the criminological theories from a biopsychosocial context. Includes intervention and prevention strategies.

3 credits

### **CJUS 2050 VICTIMS OF CRIME**

Discussion on the victims of crime 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 biopsycosocial factors that influence altered conduct and social reaction.

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 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 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 INTERROGATION**

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 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 I**

Analysis of general concepts of modern techniques for investigating crimes. Application of the scientific method and auxiliary sciences to the study of cases in criminal investigation. Prerequisites: CJUS 3025, 3030. 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 LEGAL SOCIOLOGY**

Sociological and historical study of the different legal structures: their development, institutionalization and praxis. Emphasis on State organisms and their power relationships.

3 credits

**CRIM 3014 CRIME AND MEDIA**

Analysis of the interrelation among media, public opinion, crime and government. Emphasis on the symbiotic relation between knowledge, truth, information and criminal conduct. Prerequisite: CJUS 1000.

3 credits

**CRIM 3020 STATISTICAL METHODS APPLIED TO CRIMINOLOGY**

Analysis and statistical data processing applied to criminology. Emphasis on the analysis of the descriptive and inferential statistics most used in social research. Application of the statistical knowledge by means of the use of the technology in computer to the criminological research. Prerequisites: GEMA 1000, GEIC 1010.

3 credits

**CRIM 3021 GENDER AND CRIME**

Interdisciplinary analysis of the construction of gender, its features and how they are related to conducts considered to be antisocial and criminal. Survey of social change with emphasis on social relations by gender. Prerequisites: GEMA 1000, GEIC 1010.

3 credits

**CRIM 3040 MENTAL DISORDERS AND CRIMINOLOGY**

Evaluation of the biopsychosocial factors that lead to social deviations. Analysis and integration of the different theoretical perspectives related to the mental disorders that contribute to the development and perpetration of criminal acts. Prerequisites: PSYC 1051, CRIM 2010.

3 credits

**CRIM 3838 DEVIANT BEHAVIOR, ANTISOCIAL AND CRIMINAL SOCIOLOGY**

Study of the main currents of thought related to deviant, antisocial and criminal behavior. Discussion of the social aspects that promote this behavior and the different modalities of intervention and prevention. Prerequisite SOCI 1030.

3 credits

**CRIM 4010 CRIMINOLOGICAL SOCIAL RESEARCH**

Identification of the philosophical, theoretical and methodological principles most used in criminological social research. Application of scientific social knowledge in the search for solutions to criminality. Prerequisites: SOCI 1030, CRIM 2010, 3020.

3 credits

**CRIM 4020 TERRORISM AND SOCIETY**

Analysis of the origin and development of the terrorism. Emphasis on the trends and consequences of terrorism at the national and international levels from different perspective: historical, political, religious, economic and the social.

3 credits

**CRIM 4030 CONTEMPORARY SOCIAL PROBLEMS**

Analysis of contemporary social problems and their relationship with the social functions displayed within the global society in terms of the definition, the origin and the magnitude of criminal activity. Includes human trafficking, cybernetic crimes, drug trafficking, fraud, environmental crimes and crimes without victims, among others. Prerequisite: CRIM 4010.

3 credits

**CRIM 4910 INTERNSHIP IN CRIMINOLOGY**

Integration of knowledge, skills and attitudes in a work scenario in the area of criminology. Requires 100 hours of practice supervised by a professor: 90 hours of practical experience and 10 hours of classes. Prerequisites: Minimum of 90 approved credits, including 12 credits in the major, and meeting all requirements established in the Internship Manual.

3 credits

### **CRIM 4970 CONTEMPORARY THEORETICAL DEBATES IN CRIMINOLOGY**

Survey of the main currents of criminological thought: similarities, differences, strengths and weaknesses. Analysis and discussion of current theoretical debates. Prerequisite: a minimum of nine credits in the major.

3 credits

## **Courses in Design (DSGN)**

### **DSGN 1000 ELEMENTS AND PRINCIPLES OF ARTISTIC LANGUAGE**

Analysis of the structural elements, the principles of artistic language and its practical application in design. Study of diverse techniques and traditional and contemporary media and experimentation with diverse materials. Requires 90 hours of lecture-workshop.

3 credits

### **DSGN 1040 DRAWING AS A FOUNDATION FOR DESIGN**

Study of drawing as a prefigure of design. Application of the structural elements through drawing techniques and materials. Requires 90 hours of lecture-workshop

3 credits

### **DSGN 2001 TWO-DIMENSIONAL DESIGN I**

Analysis of the principles and elements of design applied to the two-dimensional format. Emphasis on practical design exercises through traditional and contemporary media. Requires 90 hours lecture-workshop

3 credits

### **DSGN 2002 TWO-DIMENSIONAL DESIGN II**

Solution of specific applied two-dimensional design problems. Emphasis on the application of two-dimensional design principles, using traditional and contemporary media, within graphical design and in diverse professions. Requires 90 hours of lecture-workshop. Prerequisite: DSGN 2001.

3 credits

### **DSGN 2021 TRIDIMENSIONAL DESIGN I**

Analysis of design principles applied to three-dimensional space. Emphasis on structure, volume, balance and mass ratio with space. Introduction to the noble materials such as clay, wood and metals, among others; and manipulation and transformation techniques. Requires 90 hours of lecture-workshop.

3 credits

### **DSGN 2022 TRIDIMENSIONAL DESIGN II**

Discussion and analysis of the methods and techniques in three-dimensional design. Study of the conventions, formats and measures in projection drawings. Includes presentation techniques, traditional and contemporary media and the introduction to malleable materials. Requires 90 hours lecture-workshop. Prerequisite: DSGN 2021.

3 credits

### **DSGN 3000 SURFACE DESIGN, TECHNIQUES AND MATERIALS**

Study of design in the two-dimensional surface in which the techniques of baking, smelting, enameling and glass finish are used. Creation of murals, mosaics and other decorative media. Requires 90 hours of lecture-workshop.

3 credits

### **DSGN 3010 BASIC DIGITAL DESIGN**

Study of digital techniques in two and three dimensions, as well as the manipulation of images. Emphasis on the application of the elements of art and the principles of the design to digital images. Requires 90 hours of lecture-workshop.

3 credits

**DSGN 3030 CHRONOLOGY OF DESIGN**

Chronological Study of the development of design with emphasis on concepts related to the era and geography. Analysis of construction techniques and materials in the creation of the functional and esthetic objects in agreement with the culture.

3 credits

**DSGN 3110 APPLIED TRIDIMENSIONAL DESIGN, TECHNIQUES AND MATERIALS**

Creation of three dimensional functional objects using baking, smelting, enameling, glass finish and carving techniques. Requires 90 hours lecture-workshop.

3 credits

**DSGN 3200 PRINCIPLE OF FUNCTIONAL MATERIALS**

Theoretical and practical studies of diverse materials like stone, wood, metal, clay, glass and fabrics. The fundamentals of composition that emphasize the relation between form and function will be applied. Problem solving relevant to contemporary design will be emphasized. Requires 90 hours of lecture-workshop.

3 credits

**DSGN 3220 INTERMEDIATE DIGITAL DESIGN**

Study of the digital techniques used in graphical design and in objects, with the purpose of developing intermediate and advanced skills in two-dimensional design. Introduction to three-dimensional digital design. Work with illustration, drawing and composition techniques. Application of elements of art and the principles of design to effective digital programs. Brief introduction to cybernetic design programs and animation and multimedia design. Requires 90 hours of lecture-workshop.

3 credits

**DSGN 3340 STRUCTURAL DESIGN, TECHNIQUES AND CUTS**

Application of construction and sizing concepts and techniques in a variety of traditional and contemporary materials for the creation of functional and esthetic objects. Requires 90 hours of lecture-workshop.

3 credits

**DSGN 3400 ENTREPRENEURIAL DEVELOPMENT IN DESIGN**

Discussion and analysis of the aspects of entrepreneurial development in the field of applied or functional design. The chronological study of local and international markets and the projection in the development of a design company. Prerequisite: ENTR 2200.

3 credits

**DSGN 3500 CONCEPT AND CREATIVITY**

Study and application of diverse concepts in the art process and in the development of esthetic creativity. Exercises directed to the development of personal ideas that integrate concept and image. Emphasis on the creation of a style through the original use of art elements and techniques that facilitate expression. Exercises using diverse means and techniques. Requires 90 hours of lecture-workshop.

3 credits

**DSGN 3510 SPECIALIZED WORKSHOP**

Practice workshop focused on the application of design principles in the creation of works of particular interest. Exposure to a variety of media and techniques that allow the student to choose a specialization area. Requires 120 hours of lecture-workshop.

4 credits

**DSGN 4010 DESIGN AND CONTEMPORARY CULTURES**

Study and application of functional object design, taking as reference a wide conceptual framework: form-function, body, environment, event, values, contemporary beliefs and cultures. Analysis of the esthetic-functional object in the contemporary world with emphasis on design methods and research, visualization, creation of models and presentation techniques. Prerequisites: DSNG 2001 or DSNG 2021.

3 credits

### **DSGN 4050 DEVELOPMENT OF PORTFOLIO**

Preparation of a portfolio to enter the professional design field or as a presentation for graduate studies. Integration of obtained knowledge and the technical development by means of the presentation of creative works of excellence. Requires 120 hours of lecture-workshop. Prerequisites: DSGN 3500, 3510.

4 credits

### **DSGN 4910 INTERNSHIP IN DESIGN**

Internship that entails work with supervised practice in workshops and studios of artist designers as well as in companies related to design. The supervisor-artist will give a final report. Requires 120 hours of lecture-workshop. Prerequisites: DSGN 3400, 4050.

4 credits

## **Courses in Design and Development of Video-Games (GAME)**

### **GAME 1100 DESIGN OF VIDEO GAMES**

Study of the different processes in the development of video games from their conceptual stage to their realization in a design document. Requires 30 hours of lecture and 30 hours of closed lab.

3 credits

### **GAME 1200 INTERACTIVE NARRATIVE FOR VIDEO GAMES**

Study and application of the different aspects of the narrative process from the basic concepts to the concepts of a non-linear narrative. Discussion of themes of the video games industry related to the field of the writing of: scripts, documentation, manuals, and strategy guides. Discussion of the concept of copyrights. Requires 30 hours of lecture and 30 hours of closed lab.

3 credits

### **GAME 3101 VIDEO GAME PROGRAMMING I**

Discussion of the basic techniques used in the development of a video game. Development and use of tools that allow the student to construct the different components that make up an electronic game. Creation of one or several video games with 2D graphs, sound and limited interactivity. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMP 2400.

3 credits

### **GAME 3102 VIDEO GAME PROGRAMMING II**

Analysis and application of several essential advanced concepts in the construction of video game, such as interconnectivity, data management, abstraction of the laws of physics and the incorporation of algorithms of artificial intelligence. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: GAME 3101.

3 credits

### **GAME 3103 VIDEO GAME PROGRAMMING III**

Analysis of several advanced concepts, such as: the administration of 3D graphs, scripting and game engines. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: GAME 3102, PHYS 3300.

3 credits

### **GAME 3201 GRAPHICS FOR VIDEO GAMES I**

Analysis of the basic concepts of visual arts design, such as balance, composition, contrast, lighting, perspective, color theory and texture. Exposure to the management of 2D images and their digital representation. Use of different tools related to digital art. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMP 2501.

3 credits

### **GAME 3202 GRAPHICS FOR VIDEO GAMES II**

Application of the basic concepts of digital art 3D, such as the representation of 3D digital models, geometric transformations, integration of textures, perspective, and the effects of light and shade. Use of tools for managing 3D graphs. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: COMP 2502, GAME 3201.

3 credits

**GAME 3203 GRAPHICS FOR VIDEO GAMES III**

Application of advanced techniques in managing 3D models such as: tonalities, shading, bulging, reflection, refraction, transparency, diffraction, lighting, caustics, blending, depth and animation. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: GAME 3202.

3 credits

**GAME 3400 ARTIFICIAL INTELLIGENCE FOR VIDEO GAMES**

Review of the diverse areas of the new field of artificial intelligence with emphasis on the application of artificial intelligence to the development of video games. Discussion of topics related to artificial intelligence, such as learning, behavior, the search for routes, the analysis of movement, and coordinated movements, among others. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisite: COMP 2900.

3 credits

**GAME 4100 PROJECT: DESIGN, DEVELOPMENT AND PUBLICATION OF A VIDEO GAME**

Practice of all knowledge acquired throughout the program. "Production of a video game" from its conceptual stage to its publication. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: COMP 3400, GAME 1100, 3102, 3202. This course must be passed with a minimum grade of B.

3 credits

**GAME 4300 EMERGING ISSUES IN THE FIELD OF VIDEO GAMES**

Discussion of emerging topics related to video games. Includes innovating technologies, new algorithms and shifts of paradigms in areas directly or indirectly related to video games, such as: the area of artificial intelligence, graphs, computerized vision, robotics, and the video games industry. Requires 45 hours of lecture. Prerequisites: COMP 3400, GAME 1100, 3103, 3203.

3 credits

**GAME 4400 VIDEO GAME DEVELOPMENT FOR CONSOLES AND PORTABLE EQUIPMENT**

Analysis of the architectures of different equipment and consoles, their capacities and their limitations. Development of video games for different consoles and equipment. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: COMP 3400, GAME 1100, 3102, 3202.

3 credits

**GAME 4500 EMULATORS**

Discussion of the theory and design of various emulators. Includes the architecture of their respective consoles and the different tools used for analysis, extraction and modification of the equipment and the information within them. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: COMP 3200, 3400.

3 credits

**GAME 4910 INTERNSHIP: EXPERIENCE IN THE VIDEO GAMES INDUSTRY**

Experience in a real work environment related to the design of video games in an institution approved by the course supervisor. Requires 200 hours of internship and the authorization of the department director. Prerequisites: COMP 3400, GAME 1100, 3102, 3202.

3 credits

**Courses in 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 video games, 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 MENTAL RETARDATION AND EMOTIONAL DISTURBANCES**

Discussion of mental retardation and emotional disturbances. Includes the etiology, identification and characteristics. Emphasis on the needs of these students, educational programs beginning at the preschool level, and orientation to parents and the community.

3 credits

**EDUC 2906 NATURE AND NEED OF STUDENTS WITH SPECIFIC LEARNING PROBLEMS, ADD AND ADHD**

Discussion of specific learning problems, ADD and ADHD. Includes the etiology, identification and characteristics. Emphasis on the needs of these students, the different educational programs beginning at the preschool level, and orientation to parents and the community.

3 credits

**EDUC 2907 NATURE AND NEEDS OF THE DEAF AND PARTIALLY DEAF STUDENT**

Analysis of the nature, needs and classification of the deaf and partially deaf student. Identification of the etiology and characteristics of students with these conditions. Emphasis on the comparison of the different educational programs available from the pre-school to the secondary level. Includes the ethical and legal aspects for this particular population.

3 credits

**EDUC 2909 SIGN LANGUAGE IN THE CONTEXT OF THE DEAF AND PARTIALLY DEAF CULTURE**

Introduction to the use of the basic formal sign language. Survey of the characteristics of the culture concept of the deaf and partially deaf. Emphasis on the examination of the value system, beliefs and rules that guide how the deaf and partially deaf student feels and behaves. Includes the basic skills of a professional interpreter.

3 credits

**EDUC 2911 CURRICULUM, METHODOLOGY AND MATERIALS FOR TEACHING THE DEAF AND PARTIALLY DEAF STUDENT**

Comparative analysis of the traditional and innovative curriculum models for educational intervention in the deaf and partially deaf student. Emphasis on the importance of an interdisciplinary focus, as well as on the use of technological resources in teaching. Classroom visits in schools where deaf and partially deaf students are integrated, as well as visits to specialized classes for this population, are required.

3 credits

**EDUC 3003 NATURE AND NEEDS OF INFANTS AND PRESCHOOL AGE CHILDREN WITH DEVELOPMENTAL DEFICIENCIES**

Introduction to early intervention. Topics related to appropriate intervention methods with children up to five years of age with disabilities and the skills that they should develop. Techniques and instruments used to evaluate the development of infants and preschool children that are suspected to have some disability. Students will have the opportunity to analyze existing instruments, construct new instruments and experience the evaluation of a child. The role of the family in the development of the plan for its individualized services and its role in the intervention program.

3 credits

**EDUC 3010 SOCIAL, EMOTIONAL AND COGNITIVE DEVELOPMENT OF THE CHILD**

Analysis and study of children in their social and cultural context. Fundamental principles of personality development. Bases for cognitive-moral development and analysis of the relationship of environment-behavior in the development of the child. Prerequisites: EDUC 2022, 2032.

3 credits

**EDUC 3013 TEACHING STRATEGIES**

Careful examination of the strategies used by teachers to establish a favorable learning climate. Study of the most effective teaching methods including those that promote the development of values and their application in the classroom. Utilization of educational technology as a resource aid in class design. Emphasis on the formulation of questions, the problematization of learning and on activities which lead students to meet and build their own understanding. Use of collaborative work (in teams) as a teaching technique.

2 credits

**EDUC 3015 CLINICAL EXPERIENCES IN THE EDUCATIONAL SCENARIO I**

Clinical experiences as a student-teacher in a school at the level and in the subject matter of the student's specialty. Emphasis on the student's professional development and the use of effective educational strategies to work with small groups and later with the whole group. Requires 15 hours in the classroom, a minimum of 25 hours in the educational scenario and a minimum grade of B in the course. Prerequisites: EDUC 2890 and the authorization of the Coordinator or Supervisor of Clinical Experiences.

2 credits

**EDUC 3050 THE CHILD AND THE SOCIAL ENVIRONMENT**

The child in the social and cultural context; analysis of social forces affecting the most important agencies and their contribution toward the achievement of educational goals. Prerequisite: EDUC 2031.

3 credits

**EDUC 3053 DIAGNOSIS, EVALUATION AND ASSESSMENT TECHNIQUES FOR STUDENTS WITH AUTISM**

Review of the formal instruments used by specialists for data compilation related to diagnosing autism. Analysis of autism indicators or characteristics according to experts and recent studies. Includes the preparation and

interpretation of informal tests and their implications for placement and preparation of the Individualized Education Program of the student. Design and application of informal techniques of evaluation and assessment.

3 credits

#### **EDUC 3054 CURRICULUM AND TEACHING METHODS FOR STUDENTS WITH AUTISM**

Comparative analysis of the curriculum models suggested for educational intervention of children with autism. Includes the study of innovative teaching strategies and methods. Emphasis on the importance of the interdisciplinary approach in intervention and the use of technological resources in the education of children with autism. Visits to classrooms of children with autism are required.

3 credits

#### **EDUC 3075 MATHEMATICS CURRICULUM, TEACHING AND ASSESSMENT IN THE PRIMARY GRADES (K-3)**

Analysis and discussion of the mathematics curriculum with emphasis on the mastery, interpretation and understanding of curricular content in the primary grades. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards for the mathematics program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for teaching mathematics at this level.

2 credits

#### **EDUC 3076 MATHEMATICS CURRICULUM, TEACHING AND ASSESSMENT IN THE PRIMARY GRADES (4-6)**

Analysis and discussion of the mathematics curriculum with emphasis on the mastery, interpretation and understanding of curricular content at the elementary level. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards for the mathematics program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for teaching mathematics at this level.

3 credits

#### **EDUC 3083 SOCIAL STUDIES CURRICULUM, TEACHING AND ASSESSMENT IN THE PRIMARY GRADES (K-3)**

Analysis and discussion of the social sciences curriculum with emphasis on the mastery, interpretation and understanding of curricular content in the primary grades. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards for the social studies program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for teaching social studies at this level.

2 credits

#### **EDUC 3084 SOCIAL STUDIES CURRICULUM, TEACHING AND ASSESSMENT IN THE PRIMARY GRADES (4-6)**

Analysis and discussion of the social sciences curriculum with emphasis on the mastery, interpretation and understanding of the curricular content at the elementary level. Includes needs assessment and the planning, implementation, evaluation and assessment of the teaching learning process taking into account individual differences. Emphasis on the standards for the social studies program of the Puerto Rico Department of Education. Critical analysis of computerized programs appropriate for teaching social studies at this level.

3 credits

#### **EDUC 3090 CHILDREN'S LITERATURE**

Evaluative and critical study of the literary forms and content for children from the most ancient folkloric forms through modern forms. Critical selection of a representative literary anthology for each teaching level in the Puerto Rican and universal environments. Problems, creative projects and laboratory, including the production of a creative literary work, reading, reports, practical observations, discussion and demonstrations of the effective use of children's literature from a non-discriminatory perspective.

3 credits

**EDUC 3110 DIAGNOSIS AND CORRECTION OF DEFICIENCIES IN ORAL AND WRITTEN COMMUNICATION OF SECONDARY LEVEL STUDENTS**

The deficiencies in oral and written communication of secondary level students with emphasis on methods of diagnosing and correcting them. Tests and techniques available to correct these deficiencies. Prerequisite: EDUC 2031.

3 credits

**EDUC 3126 PSYCHO-PHILOSOPHICAL INFLUENCES IN CURRICULUM MODELS FOR EARLY CHILDHOOD EDUCATION**

Historical background of preschool education. The principal psycho-philosophical trends and their influence in curricular models at the preschool level. The constructive, behavioral and maturation theories and their educational implications. Includes the analysis and comparison of the principal models and/or educational programs for early childhood (Head Start, Montessori, High Scope, Dstar 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 2910.

3 credits

**EDUC 3585 LANGUAGE DEVELOPMENT IN THE DEAF AND PARTIALLY DEAF: THEORY AND PRACTICE**

Analysis of the typical stages of language between the ages of 0-5 years. Emphasis on the deficiencies in the evolutionary development of the language and the aspects that form the treatment and rehabilitation of the language of the deaf and partially deaf child. Use of formal sign language at the advanced level. Prerequisite: EDUC 3580.

3 credits

**EDUC 3600 USE OF THE COMPUTER IN TEACHING**

Practice in the use of the microcomputer for data processing and as a resource in the teaching-learning process for problem solving and skills development in mathematics, language and data processing. Prerequisites: EDUC 2031, GEIC 1010.

2 credits

**EDUC 3610 GROUP PROCESSES IN THE CLASSROOM**

Analysis of theories related to group interaction and dynamics in the classroom. Application to real classroom situations by means of simulations. Prerequisite: EDUC 2031.

3 credits

**EDUC 3620 HUMANISTIC FOCUS IN TEACHING**

The humanistic approach in relation to learning and human development. The implications of these approaches to teaching, to study programs and to the student-teacher relation in the classroom. Prerequisite: EDUC 2031.

3 credits

**EDUC 3630 SCHOOL AND COMMUNITY**

Human resources and public and private agencies that support the school in its educational function. Strategies to enlist the cooperation of community agencies in education. Prerequisite: EDUC 2031.

3 credits

**EDUC 3640 ADULT EDUCATION**

The characteristics of the adult student population, their educational goals, and implications for teaching and programs of study. Analysis of teaching strategies for adults. Prerequisite: EDUC 2031.

3 credits

**EDUC 3650 EDUCATIONAL RESEARCH**

Practice in the use of different research techniques for decision-making in the educational process. Prerequisite: EDUC 2031.

3 credits

**EDUC 3660 BILINGUAL EDUCATION**

The characteristics of the bilingual student population and their implications for teaching. Teaching strategies and educational programs that help the bilingual student integrate satisfactorily into the school setting. Prerequisite: EDUC 2031.

3 credits

**EDUC 3670 NON-TRADITIONAL PROGRAMS**

The different educational alternatives to the regular instructional programs in public and private schools. The principles upon which their objectives, learning activities and educational programs are based. Among those studied are: The Non-Graded School, the Montessori School, Community Project and Educational Resource Center. Prerequisite: EDUC 2031.

3 credits

**EDUC 3680 CHILDREN WITH PHYSICAL AND HEALTH DISABILITIES**

The causes of health and physical disabilities (including disorders in the process of neurological development leading to physical disabilities). Incidence, procedures for service and adaptations required for the school environment. Prerequisite: EDUC 2031.

3 credits

**EDUC 3690 EDUCATION OF CHILDREN WITH VISUAL DISABILITIES**

The causes of visual problems, incidence, characteristics and available educational services. Procedures for identification, evaluation and diagnosis and educational strategies for students with visual disabilities. Prerequisite: EDUC 2031.

3 credits

**EDUC 3700 SECONDARY EDUCATION FOR YOUTHS WITH DISABILITIES**

Analysis of the variety of educational programs available at the secondary and university levels for youths with disabilities, including guidance and counseling services for the youths and their parents. Includes the prevocational and vocational programs available and the participation of these youths in the work world. Attention is given to rights guaranteed by law and to community service programs. Prerequisite: EDUC 2031.

2 credits

**EDUC 3710 INTEGRATION OF CHILDREN WITH DISABILITIES IN REGULAR CLASSROOMS**

The role of the special education teacher in helping the regular education teacher prepare materials and curriculum modifications for children with disabilities in regular classrooms. Prerequisite: EDUC 2031.

3 credits

**EDUC 3720 EDUCATIONAL INNOVATIONS**

Analysis of changes and trends in modern education. Analysis of innovative projects that have been implemented in different educational settings. Prerequisite: EDUC 2031.

3 credits

**EDUC 3750 EDUCATIONAL TECHNOLOGY LABORATORY**

Psychological and educational basis for the use of television, radio, movies, filmstrips, videotapes, tape recordings and other audiovisual materials in the teaching-learning situation. Approximately 20 hours will be devoted to laboratory experience. Prerequisite: EDUC 2031.

3 credits

**EDUC 3863 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF BIOLOGY**

Application of the theories of instruction in planning and developing learning activities in the teaching of biology. Preparation of teaching materials using technological resources and stimulating creativity. Practice in the use of the microcomputer as a teaching resource. Includes the evaluation and selection of educational resources available on the market. Prerequisite: EDUC 2031.

3 credits

**EDUC 3864 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF SCIENCE IN THE JUNIOR HIGH SCHOOL**

Theories of instruction and their application in planning and developing learning activities in the teaching of science in the junior high school. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

**EDUC 3865 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF SPANISH AT THE SECONDARY LEVEL**

Theories of instruction and their application in planning and developing learning activities in the teaching of Spanish at the secondary level. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

**EDUC 3869 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF MATHEMATICS AT THE SECONDARY LEVEL**

Theories of instruction and their application in planning and developing learning activities in the teaching of mathematics. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

**EDUC 3872 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN PRESCHOOL SPECIAL EDUCATION**

Theories of instruction and their application to planning and developing learning experiences for special education preschoolers. Emphasis on the preparation of teaching materials using technological resources, creativity and innovation. Practice in the use of microcomputers as teaching tools. Selection and evaluation of commercially produced teaching materials. Prerequisite: EDUC 2031.

3 credits

**EDUC 3873 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF THE VISUAL ARTS**

Theories of instruction and their application in planning and developing learning activities in the teaching of the visual arts. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

**EDUC 3875 EDUCATIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF PHYSICAL EDUCATION AT THE SECONDARY LEVEL 7-12**

Educational theories, selection of materials, teaching styles and strategies as they apply to the planning, organization, motivation and management of the discipline. Practice in the use of technological equipment as a teaching resource and in the selection and application of educational materials during the teaching learning process. Experience of this process in the discipline is required.

3 credits

**EDUC 3876 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF MUSIC**

Theories of instruction and their application in planning and developing learning activities in the teaching of music. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

**EDUC 3877 INSTRUCTIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN SPECIAL EDUCATION**

Theories of instruction and their application in planning and developing learning activities in special education. Preparation of teaching materials using technological resources and stimulating creativity and innovation. Practice in the use of the microcomputer as a teaching resource. Selection and evaluation of commercially produced educational resources. Prerequisite: EDUC 2031.

3 credits

**EDUC 3878 EDUCATIONAL THEORY, METHODOLOGY AND TECHNOLOGICAL RESOURCES IN THE TEACHING OF PHYSICAL EDUCATION AT THE ELEMENTARY LEVEL**

Educational theories, selection of materials, teaching styles and strategies as they apply to the planning, organization, motivation and management of the discipline. Practice in the use of technological equipment as a teaching resource and in the selection and application of educational materials during the teaching learning process. Experience of this process in the discipline is required.

3 credits

**EDUC 3885 EDUCATIONAL THEORIES AND TECHNOLOGICAL RESOURCES FOR THE TEACHING OF ADAPTED PHYSICAL EDUCATION**

Instructional theories, selection of materials, teaching styles and strategies as they apply to the planning, organization, motivation and management of the discipline. Practice in the use of technological equipment as a teaching resource and in the selection and application of educational materials during the teaching learning process. Experience of this process in the discipline is required.

3 credits

**EDUC 3886 EDUCATIONAL THEORY, METHODOLOGY, AND TECHNOLOGICAL RESOURCES IN TEACHING SCHOOL HEALTH (K-12)**

Educational theories, models, teaching styles and strategies of education as they apply to the planning of school health. Discussion of the models most used in the design and development of the curriculum of the discipline. Practice in the use of technological equipment as resources that assist the educational process. Selection and preparation of didactic materials for teaching health at the K-12 levels. Prerequisite: EDUC 2032.

3 credits

**EDUC 4009 TECHNOLOGICAL ASSISTANCE FOR TEACHING CHILDREN AND YOUNG PEOPLE WITH MILD DISABILITIES**

Application of technology as an educational means for teaching students with mild disabilities. Operation of technological equipment and programs of an educational nature to facilitate the teaching-learning process for this population.

1 credit

**EDUC 4010 MANAGING THE CONDUCT OF STUDENTS WITH AUTISM IN THE CLASSROOM**

Critical analysis of the behavior problems of students with autism. Review of the different strategies of intervention used in handling students with autism and the techniques of conduct modification. Preparation of plans for conduct modification and the importance of the participation of parents and other people in the process. Includes legal aspects concerning managing the conduct of children with autism.

3 credits

**EDUC 4011 EVALUATION AND ASSESSMENT**

Theories, techniques and means used by teachers for evaluation and assessment. Analysis of these techniques by comparing the subject content with the instrument used. Preparation, administration, correction and interpretation of tests and other evaluation and assessment techniques. Emphasis on the use of results as a means to improve the teaching-learning process. Prerequisite: EDUC 2032.

3 credits

**EDUC 4012 CLASSROOM RESEARCH**

Introduction to research that can be carried out by the teacher in the classroom using applied quantitative and qualitative methods. Study and analysis of research carried out by teachers in the classroom.

2 credits

**EDUC 4013 CLINICAL EXPERIENCES IN THE EDUCATIONAL SCENARIO II**

Clinical experiences as a student-teacher under the direct supervision of a cooperating teacher in the classroom and a university supervisor. The student-teacher has the responsibility to plan and offer as a minimum one period of class daily during the school semester. If the educational scenario permits it, at the elementary level the student can gradually teach two subjects in one grade or a subject in two grades, and at the secondary level it must be in the student's discipline with two different groups or grades. Requires a minimum of three (3) hours daily in the educational scenario and a minimum grade of B in the course. Prerequisites: 1) have passed the Core and Major Requirements, 2) have a minimum general average of 2.50 in the Core, Major and Specialization Requirements and 3) have the authorization of the Coordinator or Supervisor of Clinical Experiences.

4 credits

**EDUC 4020 PHILOSOPHY OF EDUCATION**

Critical analysis of the philosophical development of teaching and the effect these developments have had on educational policies and practices. One of the principal objectives of the course consists in helping students develop their own educational philosophy. Prerequisite: EDUC 2031.

3 credits

**EDUC 4025 EVALUATION METHODS, ALTERNATE EVALUATION, DIAGNOSIS AND ASSESSMENT OF THE DEAF AND PARTIALLY DEAF STUDENT**

Survey of the formal instruments used by specialists for the diagnosis of auditory problems. Evaluation design, assessment and learning performance of the deaf and partially deaf. Includes preparation and interpretation of informal tests, alternate evaluation and elaboration of the Individualized Educational Program (IEP).

3 credits

**EDUC 4030 ENVIRONMENTAL HEALTH AND ECOLOGY**

Analysis of activities that cause contamination of the environment, their effects on the different ecosystems and the living beings with emphasis on human beings. Study of health conservation practices of human beings as well as of their natural surroundings. Emphasis on the process of problem solving related to environmental health. Problems are considered from the individual and communitarian point of view.

3 credits

**EDUC 4035 METHODOLOGY OF TEACHING THE MATERNAL LANGUAGE AND LITERATURE**

Analysis of learning theories and their focus on teaching the maternal language, as well as the corresponding teaching techniques and strategies. Emphasis on the teaching of the production and understanding of texts, grammar and of the literary speech, in agreement with the more recent theories and focuses. Prerequisites: SPAN 2542, 3020.

4 credits

**EDUC 4040 COUNSELING IN HEALTH ASPECTS**

Analysis of inadequate behaviors and life styles, through the study of situations in which habits and customs are perceived that put integral health at risk. Development of the professional competencies necessary for recognizing risk behaviors and for planning courses of action that facilitate reconciliation and adoption of healthful practices and life styles from birth to old age.

3 credits

**EDUC 4050 CURRICULUM DESIGN**

The principles for the design of educational courses and programs. The relationship between curriculum and instruction. Experiences are provided for developing skills in the design, selection and modification of teaching units, courses and programs. In addition, the criteria for the selection of texts and educational materials are studied. Prerequisites: EDUC 3013, 4011.

2 credits

**EDUC 4090 TEACHING THE CULTURALLY DEPRIVED**

The influence exerted by a culturally deprived environment on the cognitive aspects of learning, social functions and the self-esteem of the child. Analysis of teaching methods, techniques and educational materials. Prerequisite: EDUC 2031.

3 credits

**EDUC 4100 SOCIOLOGY OF EDUCATION**

The sociological factors on which education is based and their effect on education. Emphasis on social problems confronting schools and society. Prerequisite: EDUC 2031.

3 credits

**EDUC 4110 CHILDREN'S PLAY AS A LEARNING PROCESS**

The theory of play in relation to the total development and educational process of the young child. The planning of play activities within and outside the classroom giving attention to the cognitive, soci-emotional and kinesthetic aspects. Movement patterns characteristic of children for self-discovery. Critical analysis of commercial games emphasizing computerized games. Critical analysis of studies and pertinent scientific research. Emphasis on the role of the adult in children's games.

3 credits

**EDUC 4250 PLANNING STUDENT ACTIVITIES IN THE SECONDARY SCHOOL**

Problems, practices, controversies and current trends related to sponsoring, directing and supervising student activities in the intermediate and secondary school. Objectives and organization of student councils, homerooms, clubs, school publications, assemblies, literary and oratory contests, and other student activities are studied as integrating factors in the general program of instruction.

3 credits

**EDUC 4510 PRINCIPLES OF ADULT STUDENT EDUCATION**

Discussion of concepts, theories, approaches, principles and trends in the education of adults and their implications in the adult teaching-learning process.

3 credits

**EDUC 4520 SOCIO CULTURAL -FOUNDATIONS OF ADULT EDUCATION**

Discussion of the principle socio cultural factors affecting the education of the adult student and their implications for the teaching-learning process.

3 credits

**EDUC 4530 PSYCHOLOGY OF THE ADULT LEARNER**

Discussion and analysis of the principle theories of development, growth and learning of the adult and the implications of these for teaching adults.

3 credits

**EDUC 4540 ADULT STUDENT TEACHING METHODS**

Application of proper methods, techniques, strategies and activities for teaching the adult student. Includes the use of the computer.

3 credits

**EDUC 4550 EVALUATION OF LEARNING OF THE ADULT STUDENT**

Discussion and application of assessment techniques for the formative evaluation of adult student learning. Includes the use of the computer for simple statistical analyses.

3 credits

**EDUC 4551 INTEGRATION OF BASIC KNOWLEDGE AND COMMUNICATION SKILLS**

Integration of basic knowledge and communication skills for the would-be teacher. Requires that students spend additional time outside the school schedule to complete the course modules. Students must take and pass a final comprehensive examination with a minimum score determined by the University. Prerequisites: GESP 2203; GEEN 1103 or 1203 or 2313; GEIC 1010; GEMA 1000 or 1002 or 1200; GEPE 3010 or 3020; GEHS 2010, 3020, 4020 and 4030; and GEST 2020 or 3030. Requires authorization of the academic department. Grade: P/NP.

1 credit

**EDUC 4552 INTEGRATION OF PROFESSIONAL SKILLS**

Integration of the pedagogical skills for the would-be teacher. Includes the analysis of teaching situations in agreement with the educational level. Requires that students spend additional time outside the school schedule to complete the course modules. Students must take and pass a final comprehensive examination with a minimum score determined by the University. Prerequisites: Have passed the Core Course Requirements of the major, except the courses of Clinical Experiences in the Educational Scenario, and have the authorization of the academic department. Grade: P/NP.

1 credit

**Courses in Educational Computing (ECMP)****ECMP 1010 FOUNDATIONS OF EDUCATIONAL TECHNOLOGY**

Study of the historical and theoretical foundations of the fields of educational technology and educational computation emphasizing their impact on the teaching-learning process. Study of research done on the applications of the theories studied. Study of the theoretical principles of artificial intelligence, human-computer interaction and virtual reality regarding their implications on learning. Analysis of the National Standards of Educational Technology in regard to their implications in the teaching-learning process.

1 credit

**ECMP 2070 INFORMATION AND TELECOMMUNICATIONS TECHNOLOGIES**

Fundamentals of data communication, telecommunications and their relation with the world of information science. Analysis of classifications and topologies; design and implementation of networks for data communication. Study

of distributed processing and communication protocols. Methods of evaluating data communication network equipment and software.

3 credits

### **ECMP 2090 INTRODUCTION TO COMPUTERIZED GRAPHIC DESIGN**

Introduction to the basic techniques of design and edition of computerized graphs. Discussion of computerized graphic design as a means of visual communication. Study of the principles of the theory of color, light and shade and of their properties in different contexts. Principles of typography as an essential element of visual communication. Theory, planning and elaboration of interfaces and multidirectional composition. Requires additional time in the laboratory.

3 credits

### **ECMP 3050 DESIGN AND IMPLEMENTATION OF DISTANCE LEARNING**

Application of learning principles in the design and development of distance learning experiences with emphasis on constructivist approaches. Study of the historical and theoretical foundations of distance learning. Discussion of subjects related to publication rights and public regulations and policy regarding the design and implementation of distance learning. Discussion of the scope of different distance learning technologies on learning. Study of cultural impact on the design and implementation of distance learning experiences. Requires additional time in a laboratory.

3 credits

### **ECMP 4010 ADMINISTRATION OF COMPUTER LABORATORIES**

Study of fundamental aspects for the administration of a computers laboratory in a school environment. Use of models that facilitate the administration of a computer laboratory. Techniques and management of application program installation processes, preventive maintenance of equipment, and configuration of computer hardware. Diagnosis and solution of problems related to the operation of computer equipment.

3 credits

### **ECMP 4020 COMPUTER ASSISTED CURRICULAR DESIGN**

Design of computerized interactive instructional modules. Analysis of theoretical foundations and models of curricular design. Study of the implications of the incorporation of the computer in curricular design. Emphasis on articulation of curricular design with the Standards of Excellence of the Department of Puerto Rico.

3 credits

## **Courses in Educational Cooperation (EDCO)**

### **EDCO 2000 SEMINAR IN EDUCATIONAL COOPERATION**

Different techniques for obtaining and keeping employment. Orientation on the different types of organizations in the world of the labor market and the nature of different professions. Analysis of activities to be performed in the workplace. Interpersonal relations, personal appearance and qualities.

1 credit

### **EDCO 3001, 3002 EDUCATIONAL COOPERATION I, II**

Work experience integrating theory with practice. Students will complete 145 hours in a workplace with a minimum of 10 hours weekly. Training and supervision in the activities performed. Prerequisite: EDCO 2000.

3 credits per course

## **Courses in Electronic Commerce (ECOM)**

### **ECOM 1210 INTRODUCTION TO ELECTRONIC COMMERCE**

Study of the basic elements of electronic commerce, factors that trigger development, and necessary technology to implement them. Discussion of the models of electronic commerce markets, their relation with the traditional markets, electronic commerce suppliers and their components: distribution chain management, enterprise resources management, and relationship marketing. Prerequisites: GEIC 1010, MKTG 1210, BADM 1900.

3 credits

**ECOM 2301 ELECTRONIC COMMERCE TECHNICAL INFRASTRUCTURE I**

Study of the protocols used in Internet, transmission options, components, access and security equipment. Discussion of the legal aspects related to hiring, protection and confidentiality of user databases. Prerequisite: ECOM 1210.

3 credits

**ECOM 2302 ELECTRONIC COMMERCE TECHNICAL INFRASTRUCTURE II**

Application of the basic principles for designing a WEB page for a company. Study of the administration of a WEB page. Forty-five hours of lecture-lab. Prerequisite: ECOM 2301.

3 credits

**Courses in Electronics Technology 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.

3 credits

**ENGR 2120 INTRODUCTION TO ENGINEERING COMPUTING**

Introduction to engineering problem solving using modern computer tools. Design and implementation of algorithms using a high level language program. Requires programming projects where applications and practical problems of the different engineering disciplines will be introduced. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisites: MATH 1500, ENGR 1100 and GEIC 1010.

4 credits

**ENGR 2220 COMPUTERIZED ENGINEERING GRAPHICS**

Study of graphical terminology. Analysis and solution of spatial problems. Discussion of symbols and standards applied to engineering. Study of computer graphics: equipment and programming. Use of geometric elements in two and three dimensions in computer graphics. Analysis of object visibility. Application of programs for computer-aided design commonly used in engineering. Prerequisites: GEMA 1200, GEIC 1010.

3 credits

**ENGR 3200 PROBABILITY AND STATISTICS**

Set analysis, study of combinations and repeated attempts. Application of probability functions for 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: ENGR 3200.

3 credits

**ENGR 3340 FOUNDATIONS OF STATICS AND DYNAMICS**

Analysis of force systems and the application of the law of equilibrium to particles and rigid bodies. Analysis of structural systems including internal forces and friction. Calculation of gravity centers, centroids. Analysis of kinetics and kinematics of particles and rigid bodies. Discussion of vibratory systems. Prerequisite: PHYS 3311.

3 credits

**ENGR 3343 THERMAL AND FLUID SCIENCES**

Study of the fundamental concepts of thermodynamics, mechanics of fluids and heat transfer. Application of the first and second law of thermodynamics in closed and open systems. Evaluation of power cycles and refrigeration. Study of fluid statics. Analysis of energy equations, amount of momentum and mass. Evaluation of the flow in pipes and calculation of losses. Analysis of heat transfer by conduction. Prerequisites: PHYS 3312, CHEM 2115.

4 credits

**ENGR 3350 MATERIALS SCIENCE**

Study of materials. Includes atomic bonds, crystalline structure, imperfections, diffusion process and the mechanical, thermal, electrical and magnetic behavior of metals, polymers, ceramic and compounds. Emphasis on the elasticity, plasticity, yielding and fatigue. Discussion of diagrams of phase balance, microstructures and corrosion of metals. Prerequisites: PHYS 3312, CHEM 2115.

3 credits

**ENGR 3360 FUNDAMENTALS OF ELECTRONICS**

Study and analysis of electrical circuits. Includes circuit elements, elementary network theory, differential equations of transitory circuits, circuit dynamics and permanent sinusoidal response of circuits, three-phase circuits and power. Discussion of electronic concepts. Emphasis on electronic control devices and semi conducting electronic circuits. Discussion of digital systems: binary logic, simplification of logical functions and components of digital systems. Analysis of electromechanical systems. Includes theory, magnetic circuits, transformers, and conversion of electromechanical energy. Prerequisites: PHYS 3312, MATH 3400.

4 credits

**ENGR 3500 PROFESSIONAL ETHICS FOR ENGINEERS**

Analysis of the implications of laws, regulations and canons of ethics applicable to the practice of engineering in the public and private sector. Study and discussion of cases. Evaluation of risk, economic impact, ethics to alert authorities of decisions that may cause danger. Evaluation also of health and public well-being considering legal and

environmental implications, privacy, professional and entrepreneurial responsibility. Prerequisites: ENGR 3300, GEPE 4040.

2 credits

## **Courses in Electrical Engineering (ELEN)**

### **ELEN 3301 ELECTRIC CIRCUITS I**

Study of the voltage-current characteristics for passive elements of independent and dependant sources and the laws of Kirchhoff. Use of circuit analysis techniques: mesh currents, node voltage, source transformations, Thevenin and Norton theorems and superposition. Study of capacitors, inductors and mutual inductance. Analysis of the natural response and circuits step RC, RL and RLC. Introduction to alternate current sources and the effective value. Emphasis on mathematical analysis and corresponding designs. Analysis of circuits using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: PHYS 3312.

4 credits

### **ELEN 3302 ELECTRIC CIRCUITS II**

Analysis of circuits using fasors. Analysis of power. Use of the Laplace transform techniques to analyze linear circuits with and without initial conditions. Two port circuit characterization based on impedance, admittance and function parameters of transfer. Passive filter design. Analysis of circuits using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3301, MATH 3400.

4 credits

### **ELEN 3311 ELECTRONICS I**

Study of the semi conducting materials and their properties. Analysis and design of power supply. Analysis of bipolar circuits that contain diodes, bipolar transistors and field effect transistors. Analysis and considerations of simple and multiple stage amplifier design. Analysis of operational amplifiers. Design of electronic circuits using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3301.

4 credits

### **ELEN 3312 ELECTRONICS II**

Analysis of frequency response to amplifiers. Study of feedback effect on amplifiers. Design of amplifiers with feedback and of oscillators. Analysis and design of active filters. Study of digital logic circuits. Design of electronic circuits using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3311, 3302.

4 credits

### **ELEN 3320 LOGIC CIRCUITS**

Study of Boolean algebra theorems and postulates. Simplification of logic 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 45 hours of lab. Prerequisite: ELEN 3301.

4 credits

### **ELEN 3322 LOGIC CIRCUITS II**

Design of Boolean logic and finite state machine. Standard SSI, MSI, and LSI parts. Drawing standards, dependency notation. Implementation with different logic families, mainly TTL and MOS. Synchronous system design, ALU, memory; analysis and synthesis of D, JK, and T flip flops based sequential circuits; Mealy and Moore models of sequential circuits. Functional blocks in microprocessors. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3321.

4 credits

### **ELEN 3351 ELECTROMAGNETIC I**

Study and applications of electromagnetism. Vectorial analysis in Cartesian, cylindrical and spherical systems. Discussion of the electrical and magnetic properties of dielectric, conductive and magnetic materials. Analysis of the electromagnetic field behavior in materials. Analysis of the relation between electromagnetic fields with force

and torque. Explanation of the laws of Coulomb, Biot-Savart and Maxwell equations for static fields. Prerequisites: ELEN 3301, MATH 3250.

3 credits

### **ELEN 3352 ELECTROMAGNETICS II**

Study of the Maxwell equations for dynamic fields. Analysis of electromagnetic wave propagation in lines of communication; and of electromagnetic wave propagation in conductive and dielectrics medium with and without losses. Includes the study of transmission, reflection and refraction of electromagnetic waves for normal and slant incidence. Study of antennas and their characteristics such as irradiation pattern, gain and efficiency. Importance of the equation of Friss for communication systems via satellite and radars. Prerequisite: ELEN 3351.

3 credits

### **ELEN 3420 SIGNALS AND SYSTEMS**

Study and classification of signals and systems. Analysis of systems in continuous or discrete time domain. Analysis of systems in the 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 and 45 hours of lab. Prerequisite: ELEN 3302.

4 credits

### **ELEN 4010 MICROCONTROLLERS**

Study of the organization and architecture of microcontrollers, relations of time and handling of memory. Development of systems based on microcontroller and integrated systems. Interconnections of the microcontroller to peripheral devices, entrance and exit ports and their programming. Emphasis in the design of integrated systems. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3311, 3320 and ENGR 2120 or COEN 2210.

4 credits

### **ELEN 4327 MEASUREMENTS AND INSTRUMENTATION**

Study of the measurement systems characteristics and their applications. Analysis of data acquisition systems. Circuit design for preparation of analog and digital signals. Design of instrumentation systems using different types of sensors. Measurement systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3312.

4 credits

### **ELEN 4351 POWER SYSTEMS ANALYSIS I**

Analysis of power systems 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 45 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 4355 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.

4 credits

#### **ELEN 4356 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 4358 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 4352.

4 credits

#### **ELEN 4413 ANALOG FILTER DESIGN**

Analysis of design techniques and applications of passive and active analog filters. Design of passive and active filters using Butterworth, Chebyshev and Ecliptic transfer functions. Implementation of passive and active filters. Performance of active and passive filters. Analog filter design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3312.

4 credits

#### **ELEN 4414 ELECTRONIC DESIGN**

Analysis and design of the basic configurations of operational amplifiers, converters of voltage to current and current to voltage, instrumentation amplifier and active filters. Study of DC and AC limitations of an operational amplifier. Linear and non-linear circuit design using operational amplifiers such as signal generators of analog to digital and digital to analog converters. Electronic circuit design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3312.

4 credits

#### **ELEN 4415 POWER ELECTRONICS**

Analysis of the general laws and the limitations in power electronic circuits, commutation characteristics, generic converters topologies and their operation principles, desirable commutation trajectory, and snubber circuits. Electronic power circuit design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3312.

4 credits

#### **ELEN 4509 CONTROL SYSTEMS**

Definition and types of control systems. Analysis and design of control systems in continuous time, through their mathematical models. Study of the modern and conventional theory of control systems using state variables. Representation of systems by block diagrams and reograms. Study of the characteristics of control systems. Design using the geometric root locus, frequency response and applications. Systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3312, 3420.

4 credits

#### **ELEN 4513 DIGITAL CONTROL SYSTEMS**

Analysis and design of control systems in discrete time, digital control systems. Study of the Zeta ( $z$ ) transform. Analysis of systems in discrete time in the  $Z$  plane. Analysis in the spatial state. Design of digital control systems using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

#### **ELEN 4514 ROBOTICS**

Analysis of the kinematics, dynamics and control of robotic manipulators. Design and programming of robotic manipulators. Robot applications, in industry, medicine and other areas. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

**ELEN 4515 PROCESS CONTROL**

Analysis, simulation and design of control processes using the computer. Study of the process models. Systems analysis and design using state variables. Applications of the control process. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

**ELEN 4516 COMPUTER AIDED CONTROL SYSTEM DESIGN**

Automated control system design using specialized programs. Study of the physical and mathematical system models. Controller design. Analysis by practical methods and aspects of systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

**ELEN 4517 NEURONAL NETWORKS APPLIED TO CONTROL SYSTEMS**

Study of the foundations of neuronal networks and the learning processes. Analysis of perceptron networks of one and multiple layers. Study of the basic functions of neuronal networks. Applications of control systems using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

**ELEN 4518 AUTOMATION**

Study of the technology, programming, theory and applications of industrial robots. Design of discrete process control systems by means of programmable logic controllers. Study and application of industrial sensors in the automation of discrete processes. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4509.

4 credits

**ELEN 4610 ANALOG COMMUNICATION**

Study of the representation of signals using the Fourier series and transform. Study of amplitude and angle type modulation. Analysis of bandwidth importance in a modulated signal. Study of noise, distortion and interference in communication systems. Explanation of the theorem of Nyquist and introduction to pulse type modulation. Introduction to digital communication. Communication systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 3420.

4 credits

**ELEN 4611 MICROWAVE AND RADIO FREQUENCY ENGINEERING I**

Study of the behavior of discrete, distributed and active elements in high frequencies. Characterization of transmission lines based on characteristic impedance, reflection coefficient, electrical length and stationary waves. Design of connecting networks using the Smith Chart. Analysis of microwave circuits using the two port circuit theory and flow charts. Design of narrow band microwave and amplifier filters. Implementation of microwave circuits using micro tapes and discrete elements. Design of radio frequency and microwave systems using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3352, 4610.

4 credits

**ELEN 4612 MICROWAVE AND RADIO FREQUENCY ENGINEERING II**

Design of directional couplers, power splitters, low noise amplifiers, ample band amplifiers, power amplifiers, oscillators, resonators and mixers. Analysis of noise effect on microwave systems. Design and implementation of microwave circuits using techniques of computer aided design (CAD). Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4611.

4 credits

**ELEN 4613 OPTICAL COMMUNICATIONS**

Analysis of the advantages of the optical communication systems versus the electrical transmission of data, and of the parameters that affect the speed of data transmission. Study of the modes of propagation, light sources, light detection circuits, and types of optical fiber. Analysis of the modulation of light for data transmission in analog and digital form. Design of optical communication systems using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3352, 4610.

4 credits

**ELEN 4614 DIGITAL COMMUNICATION**

Discussion of pulse code modulation (PCM) and Mary modulation. Analysis of modulation, demodulation and detection of baseband and bandpass signals. Analysis of the parameters that affect binary signals and of multiple levels such as the error probability, additive Gaussian noise, interference and distortion. Comparison of the Amplitude Shift-Keying, Frequency Shift-Keying, Phase shift-keying and Amplitude Phase Keying modulations. Analysis of the codification formats. Analysis of power in a system using Link Budget Analysis. Communication systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4610.

4 credits

**ELEN 4615 DIGITAL SIGNAL PROCESSING**

Analysis of continuous and discrete signals in time and frequency domain. Image, voice and arrangement processing and its implementation using software and hardware. Emphasis on the integration of the digital processing of signals concepts in a design environment. Digital signal processing systems design using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4610.

4 credits

**ELEN 4616 DESIGN OF ANTENNAS**

Study of the relation of electromagnetic energy with antennas. Analysis of the patterns of irradiation and distribution of current. Analysis of antenna efficiency in terms of irradiation pattern, beam width, directivity, polarization, effective area and power density. Design of antennas using the integrals of irradiation and auxiliary potential functions. Study of dipole, circular and bow antenna, biconical antenna, log-periodic, horn antenna, reflecting antenna and micro strip antenna. Analysis of antennas behavior in the presence of ground plane and earth curvature. Design of antenna arrangements. Explanation of measurement techniques. Design of antenna systems using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: ELEN 3352, 4610.

4 credits

**ELEN 4617 DATA COMMUNICATIONS NETWORKS**

Study of the ISO reference model. Analysis of electrical interface, data transmission, error control, and data transmission protocols. Study of communication technologies including Local Area Networks, Broadband Area Networks, and packed switching. Study of the functioning of bridges, routers, switches, circuit switched networks, Asynchronous Transfer Mode (ATM), and virtual circuit. Design of networks. Data networks simulation using the computer. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4610.

4 credits

**ELEN 4618 WIRELESS AND CELLULAR COMMUNICATION**

Integration of the fundamental concepts of wireless communication systems such as: personal communication systems (PCS), cellular, wireless networks for computerized systems, call processing, frequency reuse, losses in propagation, CDMA systems, fading reduction methods, techniques for error correction and multipath. Discussion of several access methods, such as: FDMA, TDMA and CDMA. Simulations of different modulation architectures using computer applications. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ELEN 4610.

4 credits

**ELEN 4810 PROJECT DESIGN IN ELECTRICAL ENGINEERING**

Design of electronic systems in accord with a specific project applicable to industry that students will undertake, putting into practice what they have learned in the major and submajor courses. Prerequisites: Have approved 140 credits of the baccalaureate, among which are four credits of the submajor.

3 credits

**ELEN 4811 DESIGN PROJECT IN ELECTRICAL ENGINEERING AND COMPUTERS I**

Experience in design and integration of knowledge acquired in the development or design of some device, system or process. Development of skills in multidisciplinary teamwork, in organization and effective communication. Review of the preliminary design where the viability of the project is assured. Requires 15 hours of lecture and 30 hours of lab. Prerequisites for electrical engineering students: ELEN 4010, 4327, 4509 and 4610. Prerequisites for of computer engineering students: ELEN 4010, 4610 and COEN 3410.

2 credits

**ELEN 4812 DESIGN PROJECT IN ELECTRICAL ENGINEERING AND COMPUTERS II**

Continuation of the design and presentation of the device, system or product. Includes the implementation or the simulation of the device, system or product, as the case may be. Requires 45 hours of closed lab. Prerequisite: ELEN 4811.

1 credit

**ELEN 4910 ELECTRICAL ENGINEERING PRACTICAL EXPERIENCE**

Supervised electrical engineering practical experience in the industry or government agency. A comprehensive report must be submitted at the end of the term based on the electrical engineering practical experience. A faculty member will supervise the practical experience of the student. The student must complete at least 160 hours of practical experience. Prerequisites: Have passed the electrical engineering courses corresponding to the fourth year in the Electrical Engineering curriculum; be admitted to a company related to electrical engineering and have the approval of the supervisor professor.

4 credits

**Courses in English (ENGL)****ENGL 2054 SPEECH WORKSHOP**

Emphasis on pronunciation, syntax and intonation through oral practice and laboratory training. For non-native speakers of English.

3 credits

**ENGL 2060 CONVERSATION AND GRAMMAR REVIEW**

Development of oral expression by discussion of current events and daily life. Practice in pronunciation and oral comprehension. Grammar review stressing oral expression. Systematic study of vocabulary and common idiomatic expressions. Prerequisite: 9 credits in English.

3 credits

**ENGL 2075 TECHNICAL LITERATURE**

Selected technical literature is studied in terms of structure and content. Emphasis on the preparation and use of technical reports.

3 credits

**ENGL 2076 READING AND WRITING OF TECHNICAL TEXTS**

Analysis of academic texts such as textbooks, professional journals and literature available on line and used in content courses; practice of reading and writing strategies of required specialized technical texts; workshops using the computer as a work tool.

3 credits

**ENGL 2086 BUSINESS ENGLISH**

Fundamentals of grammar, sentence structure, punctuation, spelling, and vocabulary building; practice in writing business communications.

3 credits

**ENGL 3007 ADVANCED 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 Sciences (EVSC)****EVSC 1110 INTRODUCTION TO ENVIRONMENTAL SCIENCES**

Introduction to the study of environmental sciences with emphasis on its scientific base. Attention will be given to the social and economic aspects. Requires 30 hours of lecture and 45 hours of lab.

3 credits

**EVSC 2210 ENVIRONMENTAL POLICIES, LAWS AND REGULATIONS**

Study and analysis of the policies and most relevant legal resources for pollution control and the conservation of natural resources in Puerto Rico and the United States. Prerequisite: EVSC 1110.

3 credits

**EVSC 2500 QUALITY OF AIR**

Study of the characteristics of air, ways it is contaminated and the effects of this. Emphasis on sources that generate contamination, the laws that control it and the technologies used in its control. Prerequisite: EVSC 2210.

2 credits

**EVSC 3001 MANAGEMENT AND CONSERVATION OF NATURAL RESOURCES**

Introduction to the use, conservation and management of natural resources: soil, water, forests, wild life, sea, minerals and air. The principal conservation mechanisms and strategies as well as restoration will be studied. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: EVSC 1110, BIOL 1101, 1103.

4 credits

**EVSC 3600 WASTE MANAGEMENT**

Study of the generation, handling, disposition and treatment of solid, dangerous and toxic wastes. In addition, their sources, characteristics, storage, transport, reduction, reuse and recycling are studied. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: EVSC 2210, BIOL 3504, CHEM 2111.

3 credits

**EVSC 3603 HEALTH AND OCCUPATIONAL SAFETY IN ENVIRONMENTAL PROTECTION**

Introduction to the study of health and occupational safety in environmental protection. Includes the identification of dangers, description of risks, prevention of damage and regulations. Emphasis on the development and handling of programs in the industrial and commercial context. Prerequisite: EVSC 3600.

3 credits

**EVSC 3713 USE OF LAND AND GEOGRAPHIC INFORMATION SYSTEMS**

Description and analysis of the different uses of land and the available mechanisms to facilitate planning. Emphasis on the use of Geographic Information Systems to facilitate planning of land use. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: EVSC 3001.

3 credits

**EVSC 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 and MAMS)**

### **FINA 2100 MANAGERIAL FINANCE**

Study of the basic and contemporary principles of financial administration and its use in decision making. Emphasis on the use of mathematical models to determine the present and future value of investments. Use of techniques to evaluate the financing of the company's assets, risk and project yield. Analysis of the structure and the cost of capital. Prerequisite: ACCT 1161.

3 credits

### **FINA 3120 ADVANCED MANAGERIAL FINANCE**

Analysis and problem solving in financial administration. Emphasis on long term investments and financing, as well as the dividends policy. Discussion of the merger, bankruptcy and reorganization processes. Analysis of cases and related integrative problems. Prerequisite: FINA 2100.

3 credits

### **FINA 3130 CREDITS AND COLLECTIONS**

Analysis of the nature and function of credit and the importance of the effective administration of personal and commercial credit. Discussion of the basic principles, legal aspects, and the evaluation and decision to grant credit. Includes the credit and collection department's responsibility for the assessment of risk and control of collections. Prerequisite: FINA 2100.

3 credits

### **FINA 3150 PERSONAL FINANCE**

Discussion of personal finance planning of available resources on a short and long term basis. Analysis of financial and investment decisions with regard to present and future available income and the personal or family budget. Emphasis on the decision-making process for the selection of resources for financial protection (insurance); retirement planning, personal investment and the tax payments. Prerequisite: FINA 2100.

3 credits

### **FINA 3200 PRINCIPLES OF INVESTMENT**

Identification of the characteristics and mechanisms of the investment process. Discussion of the risk and yield theory. Analysis of the main stock-exchange investments: bonds, stocks, options, mutual funds, futures, and others. Emphasis on the models of evaluation used in the investment portfolio. Prerequisites: FINA 3120, MAEC 2222.

3 credits

### **FINA 3300 THE STOCK MARKET**

Discussion of the operation and characteristics of the main primary and secondary financial markets. Discussion of the role of brokers and financial institutions as well as control mechanisms and regulations. Analysis of the main indices and averages of the markets, as well as the interpretation of published financial information. Emphasis on the theory of efficient markets, other contemporary theories and their application to investment strategies. Prerequisite: FINA 3200.

3 credits

### **FINA 3400 INTRODUCTION TO RISK AND INSURANCE**

Evaluation and selection of the insurances in different companies. Emphasis on the methodology to carry out the analysis of risk, and the theoretical and practical principles in the insurance industry. Application of the techniques of handling subscriptions and insurance appraisals. Discussion of civil responsibility, bodily injuries and other people's property. Analysis and interpretation of financial statements, laws and ethics in the insurance industry. Prerequisite: FINA 2100.

3 credits

**FINA 3500 INTRODUCTION TO REAL ESTATE**

Analysis of the principles that govern the administration, possession and use of real estate, within the legal, social and economic context. Discussion of the evaluation, appraisal and financing aspects. Prerequisite: FINA 2100.

3 credits

**FINA 4100 INTERNATIONAL FINANCE**

Analysis and practices of enterprise financial administration within the context of globalization. Includes the analysis of international financial markets. Evaluation of resources and uses of funds abroad and the criteria in the selection of diverse investment opportunities. Emphasis on interchange mechanisms and financial instruments that cover risk in international transactions. Prerequisite: FINA 3300.

3 credits

**FINA 4910 INTERNSHIP**

Practical experiences in the finance field supervised jointly by a university professor from the area of finances and by a professional designated by the management of the practice center. Requires a minimum of 90 hours during the academic term. Prerequisites: Authorization by the Director of the Department and have passed 21 credits from core courses and 21 credits from the major courses.

3 credits

**FINA 4970 SEMINAR IN FINANCE**

Analysis of topics in the world of finance, with emphasis on modern trends. Integration of new developments in the finance field. Prerequisite: FINA 4100.

3 credits

The following courses are part of the academic offerings in finance. These courses are only for Associate Degree Candidates.

**MAMS 2440 CREDIT AND COLLECTIONS**

Credit reporting and collection services. Existing organizations and opportunities. Credit reporting and collection service activities. Capital and personal requirements. Laws pertaining to credit bureaus. Office and business management. Prerequisite: ACCT 1161.

3 credits

**MAMS 2620 PURCHASING PRINCIPLES AND TECHNIQUES**

Principles and techniques of purchasing. Aspects of purchasing with emphasis on long term policies and profit-making opportunities. Prerequisite: BADM 1550.

3 credits

**Courses in Forensic Science (FORS)****FORS 2000 INTRODUCTION TO FORENSIC SCIENCE**

Introduction to the study of the general concepts and technical aspects of forensic science and its relation to the justice system.

3 credits

**FORS 3970 SPECIAL TOPICS**

Analysis and discussion of different specific topics on forensic science with emphasis on the discussion of cases. Prerequisite: Authorization of the Director of the Department.

3 credits

**FORS 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 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 passed a minimum of ninety (90) credits, including 15 credits in major courses, and the approval of the Director of Department.  
3 credits

**FORS 4960 INTEGRATING SEMINAR**

Integration of knowledge obtained in the courses of the major by means of an oral and written presentation of a creative work in which a contemporary problem of forensic investigation is analyzed. Prerequisite: Have passed thirty (30) credits in courses of the major.  
1 credit

**Courses in French (FREN)****FREN 1001, 1002 ELEMENTARY FRENCH**

Essentials of French grammar with emphasis on the spoken language.

4 credits per course

**FREN 2021, 2022 INTERMEDIATE FRENCH**

Review of grammar and study of composition. Continued emphasis on the spoken language. Prerequisite: FREN 1002 or two years of high school French.

3 credits per course

**Courses in Geography (GEOG)**

The courses in geography are designed to give basic preparation and additional training to students so they can pursue a career in the field. Some courses aim to provide geographically related information to people in other career areas such as biology, botany, ecology, history, economics, education and political science. Included in the curriculum are basic courses in oceanography. No major in geography is offered.

**GEOG 1014 ELEMENTS OF OCEANOGRAPHY**

General study of oceans including habitats, sea farming and the importance of ecology and natural resources to man. Requires 45 hours of lecture and related field projects. Non-credit course, except by arrangement with the dean of 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 biopsycosocial care within a multidisciplinary health team is considered. Sixty hours of practice are required. Corequisite: GERO 4313. Course is only for Nursing students interested in completing the requirements of the Minor in Gerontology.

2 credits

### **GERO 4970 SEMINAR IN SOCIAL GERONTOLOGY**

Analysis of the conditions of marginalization and discrimination to which the elderly are subjected. Study of the social policies and how they comply with guaranteeing social justice to this population. Course is only for Social Work students interested in completing the requirements of the Minor in Gerontology.

3 credits

### **GERO 4916 PRACTICE IN SOCIAL GERONTOLOGY**

Application of the basic concepts of gerontology, the ethical, legal, and research aspects and trends in the care and social services of the elderly adult in care scenarios. The biopsycosocial care within a multidisciplinary health team is considered. Sixty hours of practice are required. Corequisite: GERO 497\_. Course is only for Social Work students interested in completing the requirements of the Minor in Gerontology.

2 credits

## **Courses in Health, Physical Education and Recreation (HPER)**

### **HPER 1870, 1880 THEMES IN HEALTH, PHYSICAL EDUCATION AND RECREATION**

Individual, dual, team sports and dance; physical conditioning, weight control; simple games. Two hours of theory-practice per week.

2 credits per course

### **HPER 2030 PHILOSOPHY AND BASIC PRINCIPLES OF HEALTH**

Critical analysis of the philosophical development of basic health principles. Includes the study of degenerative diseases, physical and mental limitations, transmissible diseases, defenses of the body and immunization programs.

3 credits

**HPER 2140 EXPERIENCES IN MOVEMENT I**

Theory and practice of the fundamentals and related concepts of human movement, basic motor skills and basic gymnastics. Study of physical activity and games as means of discovering the attributes of the individual. New, traditional and creative games.

2 credits

**HPER 2150 HEALTH AND PHYSICAL EDUCATION PROGRAM IN THE ELEMENTARY SCHOOL**

Philosophy of the health and physical education program at the elementary level. The health phase includes instruction, services and healthful school living; the physical education phase covers teaching simple games and rhythmic, self-exploration and self-discovery activities.

3 credits

**HPER 2210 FUNDAMENTALS OF THE PHYSICAL EDUCATION DISCIPLINE AND PROFESSION, FUNCTION OF THE TEACHER IN THE DISCIPLINE AND IN SOCIETY**

The philosophical foundations, social and historical principles of physical education and its evolution through the history of the world and in Puerto Rico and its contribution to society. Functions of professionals, their responsibilities, functions and contributions to social, political, cultural and economic development.

3 credits

**HPER 2220 EXPERIENCES IN MOVEMENT II**

The rationale, the theory and practice of physical and recreational activities in nature, aquatic activity including swimming and aerobic activities.

2 credits

**HPER 2230 SCHOOL HEALTH EDUCATION**

Methods and materials for teaching health in the elementary schools; role and responsibilities of the teacher in the school health program.

3 credits

**HPER 2320 FIRST AID AND PERSONAL SAFETY FOR CHILDREN, YOUTH AND ADULTS**

Principles and techniques of first aid for offering primary assistance in the home, at school, at work, on the road, and in recreation and sports. The application of preventive taping, massages, therapeutic methods and strategies of rehabilitation for rapid recuperation. Includes practical experience.

2 credits

**HPER 2540 SOCIAL RECREATION**

Theoretical and practical aspects of social recreation; planning, organizing and directing activities and programs in social recreation; emphasis on leadership techniques.

3 credits

**HPER 3010 SPORTS PSYCHOLOGY**

Research and theories related to the mental, emotional and psychological aspects of participants in athletic activities and in physical education.

3 credits

**HPER 3040 LEGAL FOUNDATIONS IN SPORTS**

Analysis of the laws of Puerto Rico applicable to the sports industry. Legal implications in the practice of sports training and in the administration of a sports company.

3 credits

**HPER 3050 INTRODUCTION TO THE PREVENTION AND MANAGEMENT OF INJURIES**

Components of a program for prevention of athletic injuries. Includes protective equipment, bandaging and safety in the sports environment.

3 credits

**HPER 3051 THERAPEUTIC MESSAGES**

Discussion of the basic foundations for the application of different therapeutic massage techniques. Practical experience with emphasis on injuries in athletes is provided. Prerequisite: HPER 3050.

3 credits

**HPER 3111 ELEMENTARY GYMNASTICS**

Tumbling and basic exercises. Includes an introduction to gymnastic apparatus.

2 credits

**HPER 3112 ADVANCED GYMNASTICS**

Tumbling and exercises at the advanced level. Use of gymnastic apparatus and practice of gymnastic routines. Prerequisite: HPER 3111.

2 credits

**HPER 3160 EDUCATIONAL AND RECREATIONAL GAMES IN THE CURRICULUM FOR THE ELEMENTARY LEVEL**

Analysis of the importance of games as tools for the cognitive, emotional, social and physical development of the child. Design and development of educational activities through games with the utilization of apparatus and educational implements for integrating curriculum. Experience in recreational activities, simple, creative and innovative games without the use of implements, cooperative games and lead-up activities for the students from K-6. Requires practical experience in the school or in educational centers.

3 credits

**HPER 3220 THEORY AND DESIGN OF PHYSICAL EDUCATION PROGRAMS FOR THE ELEMENTARY LEVEL K-6**

Review of the basis of the discipline, contemporary focuses and trends in curriculum models most relevant for grades K-6. Skills for curriculum development, design and implementation and the evaluation of programs. Laws and related regulations and national and state norms. Writing of curriculum documents applicable to teaching.

3 credits

**HPER 3230 THEORY AND DESIGN OF PHYSICAL EDUCATION PROGRAMS LEVEL 7-12**

Review of the basis of the discipline, contemporary focuses and trends in curriculum models most relevant for grades 7-12. Skills for curriculum development, design and implementation and the evaluation of programs. Laws and related regulations and national and state norms. Writing of curriculum documents applicable to teaching.

3 credits

**HPER 3270 ANATOMY AND KINESIOLOGY**

Study of the biomechanics of movement applied to different sport activities, analysis of anatomical and muscular-skeletal factors that affect the performance of human movement applied to typical and atypical populations. Laboratory experience provided.

3 credits

**HPER 3310 EXPERIENCES IN MOVEMENT III**

Experience leading to the development of corporal expression and knowledge, the values and mastery of skills related to dancing and rhythmic activities.

2 credits

**HPER 3330 EXPERIENCES IN MOVEMENT IV**

The development of knowledge, appreciation for and skills in the most established sports of our society. Sport skills, performance and evaluation (volleyball, basketball, softball and soccer).

3 credits

**HPER 3340 SKILLS IN TEAM SPORTS II**

Analysis and development of basic skills for teaching soccer and softball.

3 credits

**HPER 3350 MOTOR LEARNING AND ANALYSIS OF MOVEMENT**

Theory of motor learning. Descriptive and qualitative analysis of human movement, and the mechanisms which influence the neuromuscular system. Requires practical experiences. K-12.

3 credits

**HPER 3360 EXPERIENCES IN MOVEMENT V**

Development of knowledge and appreciation for the teaching of the best known individual sports; ping-pong, tennis and track and field.

3 credits

**HPER 3370 SKILLS IN INDIVIDUAL SPORTS II**

Analysis and development of basic skills for teaching archery, badminton and gymnastics.

3 credits

**HPER 3380 DIAGNOSIS AND PRESCRIPTION OF EXERCISES IN INDIVIDUAL AND TEAM SPORTS**

Discussion of the basic foundations of exercise tests to make sport diagnoses. Emphasis on rehabilitation and the principles for interpreting these tests. Evaluation of physiological components for the prescription of the exercise in different types of sports. Practical experience is provided.

3 credits

**HPER 3430 PERSONAL AND COMMUNITY HEALTH AND SAFETY**

The integration of the concepts of a healthy lifestyle, personal safety, stress management, nutrition and prevention in the use of alcohol and drugs. Analysis of the importance of physical activities including sleep and rest.

3 credits

**HPER 3450 RECREATIONAL EXPERIENCES**

Methods, materials and techniques for teaching recreational activities. Includes outdoor experiences.

2 credits

**HPER 3470 MOTOR THERAPY FOR CHILDREN WITH DISABILITIES**

Analysis of the principal motor problems affecting the performance of children with disabilities. Design of adequate therapeutic activities. Special attention is given to experiences for the development of mobility in children. Field experiences provided.

3 credits

**HPER 3475 THEORY AND DESIGN OF PROGRAMS FOR SPECIAL POPULATIONS**

Review of the basis of the discipline, contemporary focuses and trends in curriculum models most relevant for special populations. Skills for curriculum development, design and implementation and the evaluation of programs. Laws and related regulations and national and state norms. Writing of curriculum documents applicable to particular scenarios.

3 credits

**HPER 3480 NUTRITION FOR SPORTS TRAINING**

Nutrition and its interrelationship with health and performance in sports. Analysis of energy used and required during training and the development of a nutritional program during the training period.

3 credits

**HPER 3495 PRINCIPLES OF THERAPEUTIC RECREATION**

Study and application of principles for developing therapeutic activities. Analysis of the most used therapeutic models for special populations. Organization of therapeutic recreational activities. Field experiences provided.

3 credits

**HPER 3800 TRENDS AND ISSUES IN ATHLETIC TRAINING**

Analysis of the different problems encountered in athletic training. Readings, demonstrations and discussions related to the work of athletic coaches and the legal implications of fulfilling their responsibilities.

3 credits

**HPER 3900 HUMAN SEXUALITY**

Basic principles of human sexuality, with attention to the biological, psychosocial and cultural aspects, including family planning. Study of the activities, beliefs and sentiments with respect to human sexuality directed to foment the prevention of sexually transmissible diseases and the individual's responsibility in sexual conduct.

3 credits

**HPER 4020 ADMINISTRATION OF PHYSICAL EDUCATION, WELLNESS, HEALTH AND SPORT PROGRAMS**

The principal administrative theories and their application to physical education. Analysis of administrative processes involved in the organization of sports activities including interscholastic, intramural and invitational as well as tournaments and carnivals. Evaluation of facilities and equipment, the legal implications in case of accidents and poor security. Study of budgets. Includes laboratory experiences in practice.

3 credits

**HPER 4110 EVALUATION, ASSESSMENT AND RESEARCH IN THE TEACHING AND LEARNING OF PHYSICAL EDUCATION K-6**

Knowledge, interpretation and application of evaluation concepts, measurement, assessment and research and their relationship with the evaluation process in physical education at the elementary level. Analysis, design and application of techniques and evaluation instruments, theoretical and practical tests. Includes the study of technology in the area. Provides practical experience.

3 credits

**HPER 4120 EVALUATION, ASSESSMENT AND RESEARCH IN THE TEACHING AND LEARNING OF PHYSICAL EDUCATION 7-12**

Knowledge and application of evaluation concepts, measurement, assessment and research and their relationship with the evaluation process in physical education at the secondary level. Analysis, design and application of techniques and evaluation instruments, theoretical and practical tests. Includes the study of technology in the area. Provides practical experience.

3 credits

**HPER 4130 EVALUATION, ASSESSMENT AND RESEARCH IN THE TEACHING AND LEARNING OF ADAPTED PHYSICAL EDUCATION**

Knowledge and application of evaluation concepts, measurement, assessment and research and their relationship with the evaluation process in physical education for children with disabilities. Analysis, design and application of techniques and evaluation instruments, theoretical and practical tests. Includes the study of technology in the area. Provides practical experience.

3 credits

**HPER 4140 ASSESSMENT, EVALUATION AND RESEARCH OF TEACHING AND LEARNING IN SCHOOL HEALTH EDUCATION**

Study of the concepts of evaluation, measurement, assessment and investigation and their relation with the educational process in health education. Analysis, design and application of evaluation techniques and instruments, theoretical tests and practices. Includes the use of the technology related to the area. Provides practical experience.

3 credits

**HPER 4170 PHYSIOLOGY OF HUMAN MOVEMENT**

The physiological changes (responses and adaptations) that occur in the human organism as a result of physical activity. Physiology of muscular contraction, cardiovascular system and the respiratory system and their function in sport activities. Application to different populations. Provides laboratory experience.

3 credits

**HPER 4301 SPORT TRAINING METHODOLOGY I**

Analysis of the fundamentals required in the periodicity systems of training of general and specific type, using physiological, biomechanical, psychological, tactical and social dimensions, so that an optimal sport yield is developed. Emphasis in the fundamental principles for all type of athletic training, the components or variables of

sport training, the structure of the periods/phases of annual training and the training systems. Includes administrative and pedagogical aspects, public relations, the selection and motivation of the athlete, and the functions, qualifications and types of trainers (coaches). Practical experience is provided.

3 credits

#### **HPER 4302 SPORTS TRAINING METHODOLOGY II**

Analysis of the appropriate sport training for several sports. Emphasis on topics on the time periods for the development of muscular strength, cardio-respiratory tolerance, power and anaerobic capacity, speed and flexibility. Prerequisite: HPER 4301.

3 credits

#### **HPER 4308 DESIGN OF EXERCISE PROGRAMS**

Application of the principles for planning and design of programs of preventive physical training for diverse populations. Emphasis on the basic principles and the methodologies involved in the cardiopulmonary tests of maximum and sub-maximum effort. Prerequisite: HPER 4170.

3 credits

#### **HPER 4320 COACHING AND OFFICIATING SOCCER**

The skills, basic drills, conditioning activities, coaching techniques, principles of team selection and theoretical knowledge of soccer.

2 credits

#### **HPER 4330 COACHING AND OFFICIATING BASKETBALL**

The skills, basic drills, conditioning activities, coaching techniques, principles of team selection and theoretical knowledge of basketball.

2 credits

#### **HPER 4340 COACHING AND OFFICIATING BASEBALL**

The skills, basic drills, conditioning activities, coaching techniques, principles of team selection and theoretical knowledge of baseball.

2 credits

#### **HPER 4350 COACHING AND OFFICIATING TRACK AND FIELD**

The skills, basic drills, conditioning activities, coaching techniques, principles of team selection and theoretical knowledge of track and field.

2 credits

#### **HPER 4360 COACHING AND OFFICIATING VOLLEYBALL**

The skills, basic drills, conditioning activities, coaching techniques, principles of team selection and theoretical knowledge of volleyball.

2 credits

#### **HPER 4370 THE TEACHING OF PHYSICAL EDUCATION FOR SPECIAL POPULATIONS**

Study and application of methodologies for teaching special populations, adaptation of activities, equipment and materials, study of related laws, evaluation and elaboration of the required documents for the physical education class. Provides practical experience.

3 credits

#### **HPER 4407 MOVEMENT EXPERIENCES**

Movement patterns commonly used by children in self-discovery; relation of the body to space, applying the elements of time, weight, balance and force.

3 credits

**HPER 4441 PRACTICUM IN ATHLETIC TRAINING I**

Supervised clinical experience by professional personnel in the application of the principles of athletic training. Includes an emergency plan for injuries, transportation of the injured, risk reduction in practice and games, and record keeping.

3 credits

**HPER 4442 PRACTICUM IN ATHLETIC TRAINING II**

Second clinical experience including the use of devices, protective equipment, conditioning machines, taping and special problems of the athlete with recurring injuries. Prerequisite: HPER 4441.

3 credits

**HPER 4444 CLINICAL EXPERIENCES IN TRAINING**

Practical experience in different sport scenarios and service centers. Participation in the planning and design of programs of training directed towards the prevention of chronic diseases and/or the improvement of performance in the sport. Implementation of ergometric tests, muscular strength and flexibility, as well as the assessment of corporal composition. One hundred five hours of practice are required. Prerequisite: HPER 4308.

3 credits

**Courses in Health Sciences (HESC)****HESC 3005 HUMAN DEVELOPMENT**

Analysis of the developmental processes of the human life cycle from the biological, psychological and social perspective, with emphasis on the adult. Includes the relation of the physical, emotional and social aspects of development and their importance in achieving a full and productive life.

3 credits

**HESC 3010 ESSENTIAL CONCEPTS IN HEALTH SCIENCES**

Analysis of the fundamental principles of the health sciences. Discussion of the ethical, and legal considerations, regulatory agencies and of the trends and controversies in offering health services.

3 credits

**HESC 3020 HEALTH AND ILLNESS THROUGHOUT THE LIFE CYCLE**

Study of diseases throughout the life cycle, integration of technology in the diagnosis and therapeutic modalities and their economic impact on health services. Analysis of congenital anomalies, disabling conditions, teenage pregnancy, suicide, accidents on the job, conditions and phases unique to women, unique conditions of men, health/well-being of elderly in Puerto Rico. Review of the psychological aspect of disease and disability. Includes the process of death and dying, the crisis process, ethical controversies on euthanasia and prolongation of life through mechanical devices.

4 credits

**HESC 4010 RESEARCH METHODS IN HEALTH SCIENCES**

Analysis of the methodological basis of scientific research. Includes the theoretical base and development of skills to interpret and critique research reports. Emphasis on the identification of possible problems and processes for research. Prerequisite: HESC 3030.

3 credits

**HESC 4015 QUALITY GUARANTEE AND IMPROVEMENT**

Theoretical and philosophical frames for improving the quality of health services. Discussions of models such as: Total Quality Management, Quality Assessment, and Continuous Quality Improvement. Analysis of the latest trends in the guarantee and improvement of quality.

3 credits

**HESC 4030 COLLECTIVE HEALTH PROMOTION**

Study of three main areas: strategies for promotion of health in the community, protection of environmental health, health services and resources. Includes the identification of group or populational diseases, correlates risk factors

with the disease, factors protecting against disease and health indicators. Analysis of the role of the health educator and care provider in the communities. Integration of principles for disease prevention

3 credits

#### **HESC 4050 PLANNING AND MARKETING HEALTH SERVICES**

Discussion of the marketing system and the strategy components of promotion from the perspective of providing health services. Design, implementation, and control of marketing programs of services taking into consideration the social responsibility of the health agency. Includes ethical principles that regulate the marketing field.

3 credits

#### **HESC 4055 METHODS AND TECHNIQUES IN TEACHING HEALTH SCIENCE**

Theories of instruction applied to the planning and development of teaching health sciences. Analysis, use of methods and techniques of teaching, selection and preparation of materials for teaching integrating technological resources, innovation, and creativity. Prerequisite: EDUC 2032.

3 credits

#### **HESC 4060 DESIGN AND DEVELOPMENT OF AN EDUCATIONAL HEALTH PLAN**

Diagnosis of needs, formulation of goals, selection of content, planning and evaluation in the instruction of health sciences. Techniques for the evaluation of learning. Emphasis in the education of clients in the clinical scenario, based on the assessment of the state of physical and emotional health, and the phase of growth and development. Prerequisites: HESC 4030, EDUC 2032.

3 credits

#### **HESC 4065 AUDITING PRINCIPLES APPLIED TO HEALTH SERVICES**

Principles and concepts of auditing applied to the health systems in Puerto Rico. Emphasis on internal control systems.

3 credits

#### **HESC 4913 INTERNSHIP**

Supervised practical experience in an educational scenario related to the health field. Includes the application of knowledge contained in the courses with an educational component. Requires a total of 90 hours of practice and 30 hours of seminar in a semester. Prerequisites: Have passed the major requirements and those of the subspecialization.

4 credits

#### **HESC 4915 INTERNSHIP**

Practical on the job experience directed in the execution of daily administrative operations in a health services facility. Includes the application of administrative theory. Requires 180 hours. Prerequisite: Have passed 19 to 23 credits in courses of the major.

3 credits

### **Courses in History (HIST)**

#### **HIST 1020 THE ANCIENT WORLD**

Economic, social, political and cultural changes experienced by humanity from its appearance on Earth up to the fifth century of the Christian Era.

3 credits

#### **HIST 1030 THE MEDIEVAL WORLD**

Economic, social, political and cultural changes experienced by humanity from the fifth to the fifteenth century of the Christian era.

3 credits

**HIST 1040 THE MODERN WORLD**

Economic, social, political and cultural changes that the western world has experienced from the 15th century Christian era to the 17th century.

3 credits

**HIST 1050 THE CONTEMPORARY WORLD**

Economic, social, political and cultural changes the western world has experienced from the 18th century to the present.

3 credits

**HIST 2010 LATIN AMERICAN INDIGENOUS CULTURES**

Study the indigenous cultures of Latin America, including the Antilles, from the pre-Columbian era to the present. Particular attention is paid to the study of the world view of these cultures and how they first confronted the Europeans and then the dominant republican groups.

3 credits

**HIST 2020 SPAIN AND PORTUGAL I**

Economic, social, political and cultural transformations experienced by the inhabitants of the Iberian Peninsula from the arrival of the first settlers to the fifteenth century of the Christian era.

3 credits

**HIST 2025 SPAIN AND PORTUGAL II**

Economic, social, political and cultural transformations experienced by the inhabitants of the Iberian Peninsula from the fifteenth century to the present.

3 credits

**HIST 2030 COLONIAL LATIN AMERICA**

Interpretation of the economic, social, religious, political and cultural transformations experienced by Latin America from the time of its discovery and conquest to its struggle for independence.

3 credits

**HIST 2035 LATIN AMERICA SINCE ITS INDEPENDENCE**

Economic, social, political and cultural transformations experienced by Latin America, from the wars for independence to the present.

3 credits

**HIST 2040 THE CARIBBEAN SINCE THE 17TH CENTURY**

The Caribbean region, touching on key aspects of development in the 17th century when this region entered the world economy as an important producer of sugar and other tropical products. Emphasis is placed on the Haitian Revolution and its importance in the political and economic development thereafter. Emphasis on the relationship between the Caribbean and Puerto Rican history.

3 credits

**HIST 2045 THE HISPANIC CARIBBEAN FROM THE 15<sup>TH</sup> TO THE 18<sup>TH</sup> CENTURIES**

Discussion of the development of the Spanish colonies in the Caribbean between the 15<sup>th</sup> and 18<sup>th</sup> 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 historiographical 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 Management (HMGT)**

### **HMGT 1060 INTRODUCTION TO MARKETING IN THE HOTEL INDUSTRY**

Principles and basic marketing concepts applied to the hotel industry. Organization, planning and marketing strategies for services pertaining to lodging facilities. The variables controlled by enterprises and those beyond their control. Consumer behavior and modern marketing tendencies, segmentation and location of markets and information systems.

3 credits

### **HMGT 1200 INTRODUCTION TO THE HOSPITALITY INDUSTRY**

Description of the general characteristics of the hospitality industry and the basic concepts related to the types of hotels, restaurants and the services that these offer. Emphasis on the organizational structure and the typical operational procedures of these organizations. Prerequisites: TURI 1020, BADM 1900.

3 credits

### **HMGT 2100 ENGLISH ORAL COMMUNICATION SKILLS FOR HOSPITALITY AND TOURISM**

Development of oral communication skills in English by means of the discussion of topics related to hospitality scenes and tourism. Requires 30 hours of closed laboratory and a minimum passing grade of B. Course will be taken after having passed the nine (9) required credits in any of the levels of English of the General Education Program (GEP).

3 credits

### **HMGT 2400 PHYSICAL FACILITIES MANAGEMENT**

Identification of the general functions of the floor housekeeping and engineering departments of a hotel organization. Description of the general techniques for room maintenance and preservation of facilities. Discussion of topics related to security and preservation of the ecological environment. Includes the technologies related to property operations and control of costs. Prerequisite: HMGT 1200.

3 credits

### **HMGT 3010 RECEPTION DEPARTMENT**

Systematic analysis of the procedures of the reception office of a hotel. Emphasis on the complete process, from reservation to checkout and invoicing. Application of managerial processes to achieve effectiveness, planning and evaluation of operations and human resources within the context of the general operation of hotels. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: HMGT 1200, 2100, ACCT 1162.

3 credits

### **HMGT 3200 HUMAN RESOURCES MANAGEMENT IN THE HOTEL INDUSTRY**

Analysis of the effectiveness of the norms and practices related to personnel by means of lectures, discussions and cases studies. Emphasis on recruitment, selection, positioning and development of human resources. The study of practices related to hotel industry personnel is stressed. Prerequisites: BADM 1900.

3 credits

### **HMGT 3300 FOOD AND SERVICES MANAGEMENT**

Importance of food management and control of material supplies and services. Development of a continuous plan for determining standards, operational budgets, analysis and control of costs, labor expenses, volume and profits, income and price calculations.

3 credits

### **HMGT 3301 FOOD AND BEVERAGE MANAGEMENT I**

Description of the organization of a kitchen and its corresponding equipment. Use of commercial and domestic equipment in the simple preparation of foods and drinks. Includes the presentation and description of service styles. Study of health and safety requirements in the kitchen. Emphasis on the development of the basic concepts of food selection and preparation: salads, vegetables and pastries. Practice in culinary conversions and estimates of the food costs. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: GEMA 1200.

3 credits

**HMGT 3302 FOOD AND BEVERAGE MANAGEMENT II**

Application of the concepts of the selection, handling and preparation of food made with: eggs, meat, poultry, milk products, seafood and of desserts. Food production and service in small portions. Identification of drinks served with food. Analysis and calculations of prices per portion of foods and drinks. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: HMGT 3301.

3 credits

**HMGT 3310 COCKTAIL SERVICES**

Provides necessary knowledge for the preparation of a great diversity of alcoholic and non-alcoholic beverages, served in domestic and international settings. Presentation of the techniques, procedures, and practices appropriate for handling and using glassware, materials, and equipment. Application or simulation of the measurements and liquors in mixing drinks. Ethical and legal aspects of the profession.

3 credits

**HMGT 3330 HOTEL MANAGEMENT**

Analysis of the organizational structure of a hotel and the departments that compose it, the chains of command and inter-departmental relations. Application of managerial functions in a hotel enterprise and the quantitative methods for planning and controlling its operation. Consideration of the different factors that determine the viability of a hotel project. Prerequisites: HMGT 2400, 3010.

3 credits

**HMGT 3500 INFORMATION SYSTEMS IN THE HOTEL INDUSTRY**

Fundamental aspects of computerized systems and management of information systems in a hotel. Application of the computer to foods and beverages, purchases, sales and accounting. Prerequisites: GEIC 1010, HMGT 3330.

3 credits

**HMGT 4303 FOOD AND BEVERAGE MANAGEMENT III**

Design of appropriate concepts of food services. Study of the points of control in food and beverage procedures. Establishment of cost controls in food and drinks, from menu planning to service. Simulated laboratory for the development of the concept of a restaurant and drink preparation, as they are included in food services. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: HMGT 3302, ACCT 1162.

3 credits

**HMGT 4400 MEETINGS AND CONVENTION MANAGEMENT**

Sales process and servicing the meetings market. Identification and study of the segments that form this market. Analysis of effective sales techniques for these markets. Planning and developing different types of services for conventions and meetings. Prerequisites: HMGT 1060, 3010.

3 credits

**HMGT 4915-INTERNSHIP IN HOTEL MANAGEMENT**

Application of theories and concepts learned in a real setting. Supervised work experience in the field of lodging facilities management under the supervision of a faculty member of the Program. Requires 15 hours of lecture and a minimum of 285 hours in the Practice Center. Prerequisites: HMGT 3302, 3330.

3 credits

**Courses in Industrial Engineering (INEN)****INEN 3411 OPTIMIZATION I**

Linear programming: problem solutions through the Simplex method, duality concept, sensitivity analysis and the transportation problem. Network programming is included for project management applications: Critical Path Methods (CPM), Program Evaluation and Review Technique (PERT). Prerequisite: ENGR 3200.

3 credits

**INEN 3412 OPTIMIZATION II**

Application of various optimization methods, including linear programming and applications; dynamic, integer and non-linear programming. Emphasis on formulating, modeling and applications. Computer usage for problem solving. Prerequisite: INEN 3411.

3 credits

**INEN 3430 ADVANCED STATISTICS**

Application of advanced statistical methods, intervals of confidence, tolerance and prediction. Includes tests of hypothesis of matched data, variance and good-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 3500 SUSTAINABLE ENGINEERING AND INDUSTRIAL ECOLOGY**

Study of environmental aspects, basic understanding of sustainability principles, sustainable energy tools and applications, prevention of pollution, analysis of the life cycle, definitions and principles in industrial ecology, flow of energy and materials throughout industrial systems, examples of green design. Prerequisite: ENGR 3200.

3 credits

**INEN 3550 COST CONTROL AND ANALYSIS**

Application of principles of accounting: financial reports, work orders. Cost systems: Standard and historic; cost characteristics and control concepts; cost analysis and applications for the decision-making process. Prerequisite: ENGR 3300.

3 credits

**INEN 3650 SYSTEMS SIMULATION**

Modeling of the relationship between components of systems by computer programs. Generation of random and stochastic variables. Study of highly specialized simulation languages. Statistical considerations for procedures of simulation. Application of simulation to solution of problems in industrial production and technical services. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: INEN 3411, 3430.

3 credits

**INEN 3710 WORK MEASUREMENT**

Analysis of work systems. Study of process flow and evaluation, balancing of lines, curves of learning and incentive plan. Design and carrying out time studies, work samplings, use of allowances, predetermined times, performance classification. Evaluation of methods through value engineering, crossover charts, and economic analyses. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: INEN 3430.

4 credits

**INEN 3970 TOPICS IN INDUSTRIAL ENGINEERING**

Study of contemporary topics in the Industrial Engineering field. Lectures by experts in the specialty. Prerequisites: ENGR 1100, INEN 3430.

1 credit

**INEN 4300 QUALITY MEASUREMENT AND ANALYSIS**

Application of concepts related to the statistical quality control of processes, plus control graphics for variables and attributes. Includes process-capacity analysis. Analysis, design and planning of samples for inspection. Product acceptance and rework, defect prevention. Modern graphic methods for following and improving quality. Requires 45 hours of lecture and 45 hours of closed lab. Prerequisite: INEN 3430.

4 credits

**INEN 4400 ERGONOMICS AND DESIGN OF WORKSTATIONS**

Analysis of limitations and achievement capabilities of human beings. Principles and data for application in equipment design and adaptation to the work place environment. Requires 45 hours of lecture and 30 hours of closed lab. Prerequisite: INEN 3710.

4 credits

**INEN 4490 OPERATIONS PLANNING AND CONTROL**

Planning and control of production for large-scale operations. Inventory models, and design of inventory systems; techniques to forecast demand; added-production planning. Development of master production schedules. Resources sequencing, programming and dispatching. Basic concepts for Just in Time (JIT) and Materials Requirements Planning (MRP). Emphasis on computer applications for production planning and control. Prerequisites: ENGR 3300, INEN 3411.

3 credits

**INEN 4510 DECISION MAKING UNDER UNCERTAINTY**

Application of the following decision rules: admissible decision rules, Bayes decision rules and minimal rules. Analysis of criteria for choosing decision rules and their relationship to games theory. Use of linear programming for construction of minimal rules. Includes costs of information gathering into loss function. Problems related to time sequence decisions and their relationship to dynamic programming. Prerequisite: INEN 3411.

3 credits

**INEN 4520 SYSTEMS RELIABILITY**

Lifetime functions. Point estimation, interval estimation for failure statistical models. Mortality tests, truncated functions. Systems reliability. Reliability software. Reliability increase and handling. Prerequisite: INEN 4300.

3 credits

**INEN 4530 VALIDATION OF PHARMACEUTICAL PROCESSES**

Application of validation techniques for pharmaceutical processes and their characterization. Includes the validation of water systems, cleaning, automatic systems, computerized systems, as well as the assessment of manufacturing equipment. Emphasis on emerging trends and techniques in validation processes. Prerequisite: INEN 4300.

3 credits

**INEN 4545 SUPPLY CHAIN MANAGEMENT**

Analysis of the management of the supply chain of internal as well as external companies. Evaluation of the important processes in supply chains and how these add value to the product. Use of information technology for the effective management of materials and logistics. Prerequisite: INEN 4490.

3 credits

**INEN 4550 FACILITY LAYOUT AND DESIGN**

Application of principles and practice relative to planning, location, and design of facilities and materials handling. Emphasis on operations research techniques to facilities engineering and design. Discussion of technology and the most used equipment for performing materials transport tasks. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: INEN 3720, 4490.

3 credits

**INEN 4560 INDUSTRIAL SAFETY**

Application of fundamentals of safety engineering. Accident analysis and prevention. Accident associated cost determination. Analysis of causes and consequences of accidents in work areas. Emphasis on the development of a safety philosophy. Prerequisite: INEN 4400.

3 credits

**INEN 4570 STOCHASTIC PROCESSES**

Application of basic concepts and techniques related to random processes applied to the construction of models for a variety of practical problems. Emphasis on Poisson processes, Markov chains, queuing models, renovation theory and reliability. Prerequisite: INEN 3650.

3 credits

**INEN 4580 RESOURCES PROGRAMMING AND ASSIGNMENT**

Analysis of programming problems. Resource allocations such as: Includes only one resource, parallel processing and workshops. Application of dynamic and integer programming methodology, heuristic methods and simulation to the solution of problems of the area. Prerequisites: INEN 3411, 3720.

3 credits

**INEN 4590 PROJECT MANAGEMENT**

Analysis of organizational alternatives of a project and the process stages by controlling the range, time and cost. Integration of a project in its totality: from planning to implementation. Prerequisite: INEN 4490.

3 credits

**INEN 4600 AUTOMATED MANUFACTURING**

Components and design of automated manufacturing systems, including transfer lines and automated assembly lines. Digitally controlled machines, industrial robots, automated material handling systems. Programmable logic controllers (PLC). Flexible manufacturing systems. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: IMEC 4140.

3 credits

**INEN 4611 LEAN SIX SIGMA**

Understanding of the impact of the methodology Reads Sigma in the companies. Study and application of tools and methodologies to reduce variability and wastes, to increase production capacity, client satisfaction, and profit. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: INEN 3720.

3 credits

**INEN 4612 ADVANCED LEAN SIX SIGMA**

Analysis of the impact of the Lean Sigma methodology in companies. Evaluation of practical tools to work projects in the areas of energy, service, health and manufacturing. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: INEN 4611.

3 credits

**INEN 4700 DESIGN OF EXPERIMENTS**

Analysis and applications of experimentation design such as balanced blocks, incomplete blocks, Latin squares and random blocks. Includes variance and covariance analysis; factorial experiments. Statistical problems for finding process operating optimal conditions. Analysis for methodology of response surface. Prerequisite: INEN 4300.

3 credits

**INEN 4810 COMPREHENSIVE DESIGN EXPERIENCE**

Emphasis on design skills, teamwork and effective oral and written communication under the supervision of a faculty member. Solution of a real problem in the study area. Demonstration of the capacity to integrate fundamental knowledge of the study area, through design of a methodology, economic evaluation, analysis and optimization. Prerequisites: INEN 4550, 4560 and authorization of the Director of the Department.

3 credits

**INEN 4915 PRACTICUM IN INDUSTRIAL ENGINEERING**

Practice in a work scenario of industrial engineering in the private industry or the government, supervised by an engineer of the practice center and by a faculty member of the department. Requires a minimum of 135 hours of practice and the preparation of a comprehensive report based on student's real experience in the field of industrial engineering. Prerequisite: Authorization of the department director.

3 credits

**INEN 4970 SEMINAR IN INDUSTRIAL ENGINEERING**

Discussion of contemporary topics and their application in the service as well as the manufacture areas in the Industrial Engineering field. Lectures by experts in the field. Prerequisite: INEN 3970.

1 credit

## **Courses in Industrial Relations (INRE)**

### **INRE 2063 INDUSTRIAL SAFETY AND OCCUPATIONAL HEALTH**

Introduction to the fundamental concepts of industrial safety and occupational health, covering industrial and environmental factors and hazards, their effects and control. This course is required in the Chemical Technology, Instrumentation Technology and Industrial Management programs.

3 credits

## **Courses in Installation and Repair of Computerized Systems and Networks (CSIR)**

### **CSIR 1120 COMPUTER PROGRAM DESIGN**

Discussion of the fundamental concepts and strategies for the design of computer programs. Emphasis on the use and administration of graphical application programs for the design of schemes and databases. Requires 30 hours of lecture and 45 hours of closed lab.

3 credits

### **CSIR 1131 ELECTRONICS I**

Discussion of the concepts of electricity, electronic components and functions. Analysis of electronic circuits using Kirchoff'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 lab. Prerequisite: GEMA 1200.

3 credits

### **CSIR 1210 COMPUTER MATHEMATICS**

Boolean algebra, truth tables, numeric systems: Binary, Octal, Hexadecimal. Arithmetic operations and information applications. Symbolic character representation using ASCII.

3 credits

### **CSIR 1220 DATA COMMUNICATION**

Discussion of the concepts and terminology associated with the dynamic industry of data communication. Development of data communication, architecture of data networks, strategies in computer communication, network interconnection, work trends in communication networks.

2 credits

### **CSIR 1230 MICROCOMPUTER OPERATING SYSTEMS**

Discussion of the principles of the functioning of data processing systems by block, multiprogramming, time sharing, memory management, paging, segmentation, virtual memory, expanded memory, life system, I/O operation. The management of components and processors by means of practice in microcomputer operating systems. Requires 30 hours of lecture and 30 hours of closed lab.

3 credits

### **CSIR 2121 NETWORK ADMINISTRATION I**

General knowledge in network administration and its resources. System administration and responsibilities in handling resources, basic components, network types, topologies, expansion and interconnection, network program basic structures, data distribution processes, directory structure, volume pointers, security, supervision, console commands, printing of data. Requires 30 hours of lecture and 30 hours of lab. Prerequisite: CSIR 1220.

3 credits

### **CSIR 2122 NETWORK ADMINISTRATION II**

Knowledge and practice in networks. Installation of network programs in servers and nodes. Physical requirements (processor, memory, communication boards and hard disk), control and supervision of resources and users, setting utilities to user, evaluation of functions, installation of printer servers. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: CSIR 2121.

3 credits

**CSIR 2132 ELECTRONICS II**

Discussion of alternating current circuits and electronic circuits, solid state devices; semi conducting diodes, bipolar transistors, digital circuits, combinations and sequences. Includes amplifier, rectifier and filter design. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: CSIR 1131.

3 credits

**CSIR 2140 MICROPROCESSOR ELECTRONICS**

Discussion of the architecture, instruction set, programming and interconnection of microprocessors 8, 16 and 32 binary digits. Includes time diagrams, interrupters and exceptions, handling I/O memory and some support components. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: CSIR 1131, 1210.

3 credits

**CSIR 2150 PROGRAM INSTALLATION AND CONFIGURATION IN MICROCOMPUTERS AND NETWORKS**

Discussion of the installation and configuration of programs used in the market for personal computers and network systems. Requires 30 hours of lecture and 30 hours of closed lab. Prerequisites: CSIR 1120, GEIC 1010.

2 credits

**CSIR 2160 NETWORK INSTALLATION**

Discussion of the planning, design and implantation of a network. Installation and configuration of radio networks and its comparison with those using wiring. Use and administration of network operating systems in servers and nodes. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: CSIR 1230, 2140.

2 credits

**CSIR 2210 TECHNICAL MAINTENANCE OF PERSONAL COMPUTER**

Discussion of the main indications of computer problems through assembly, design and construction. Analysis of quotations and optimizations of system components. Practice in handling equipment and diagnostic programs for repairing computers. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: CSIR 2140.

3 credits

**CSIR 2230 NETWORK DIAGNOSIS, SERVICE AND MAINTENANCE**

Network diagnosis, maintenance and service. Application of techniques for the identification of problems or degradation of the system by the use of diagnostic programs. Installing new workstations, servers, and network interconnections. Diagnosis and replacement of physical components of a network. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisite: CSIR 1220.

3 credits

**CSIR 2910 SEMINAR**

Practice in the design and configuration of network systems and interconnections and the use of new computer system products on the market. Requires 100 hours of practical experience in the private sector in administration, installation and repair of computer systems. Prerequisite: A minimum of 30 credits of the major requirements.

2 credits

**CSIR 3300 ARCHITECTURE OF COMPUTERIZED SYSTEMS**

Analysis of the organization and structure of the principal components of computerized systems. Includes multiprocessing, batch processing, multiprogramming, shared time, memory hierarchy, access strategies, virtual memory, processors, cost analysis and considerations in computer design. Prerequisites: CSIR 1120, 1131, 1210, 1220, 1230.

3 credits

**CSIR 3310 DATABASE ANALYSIS AND DESIGN**

Analysis of different data models. Design and implementation of a database. Includes objectives, functions, models, components and applications of a database system. Operational Requirements: performance, integrity, security, approvals and CSIR. Prerequisites: CSIR 1120, 1230.

3 credits

**CSIR 3315 ANALYSIS AND DESIGN OF COMPUTERIZED SYSTEMS**

Computer systems analysis and the work environment of system analysts. Identification of the basis ways of design and the principles of project management.

3 credits

**CSIR 3510 CREATION OF ELECTRONIC PRESENTATIONS AND PUBLICATIONS**

Creation of electronic presentation and publication pages. Use of stationary visuals. Construction of options and suboptions, logical operations and strategies in communication. Includes the creation of a communication service page "Internet.". Requires 15 hours of lecture and 30 hours of closed lab.

2 credits

**CSIR 4150 NETWORK SECURITY**

Analysis of the processes in the implantation of safety measures in different types of networks and their ethical-legal implications. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: CSIR 2122, 2160.

3 credits

**CSIR 4300 INFORMATION SYSTEMS MANAGEMENT**

Planning, direction, organization and control of an information processing center. Methods of selection and acquisition of equipment, applications and systems development. Prerequisites: CSIR 1120, BADM 1550.

3 credits

**CSIR 4500 COMPUTER ASSEMBLY**

Selection and acquisition of parts and equipment for computer construction. Design and construction of a personal computer. The modification process and techniques for implementing the system. Quotation analysis and optimization of system components. Requires 30 hours of lecture and 45 hours of lab.

3 credits

**CSIR 4910 INTERNSHIP**

Supervised practical experience in a work scenario in the installation, repair, network management and new products of computerized systems, under the supervision of a faculty member. Students are required to devote 200 hours during the academic term in the development of the assigned project. Application of the knowledge, skills and attitudes learned in the laboratory to practical experiences. Prerequisite: Have passed at least 50 credits in the major.

3 credits

**CSIR 4950 CURRENT TOPICS IN NETWORK TECHNOLOGY**

Analysis of the most recent changes in network technology and their application in the enterprise environment. Prerequisites: CSIR 2122, 2160.

3 credits

**Courses in Insurance (INSR)****INSR 1400 INTRODUCTION TO RISK AND INSURANCE**

Discussion of the implications of uncertainty and risk problems in society and the techniques for handling them. Emphasis on the theoretical-legal aspects of insurance and their main applications.

3 credits

**INSR 1500 INTRODUCTION TO 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 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 3235 MONEY AND BANKING**

Role of money in the development and financing of financial institutions of a banking and non-banking nature and in the economic system in general. The instruments of the money market, of capital, the role of the Federal Reserve System, monetary policy and the International Monetary Fund are studied. Prerequisite: MAEC 2212.

3 credits

**MAEC 3236 PUBLIC FINANCE AND FISCAL POLICY**

General survey of governmental finance at the federal, state and local levels with special emphasis on the Puerto Rican setting. Prerequisite: MAEC 2212.

3 credits

**MAEC 3240 MATHEMATICS FOR DECISION-MAKING**

Functions and relations; functions and their graphs; some basic functional equations in economics. Differential and integral calculus of elementary functions and their application in economic situations. Linear difference in decision-making equations in economics. Matrix and vector analysis and its use in economic analysis. Prerequisite: MAEC 2140.

3 credits

**MAEC 3243 INTERNATIONAL ECONOMICS**

Survey of the theory of international trade, tariffs, other trade barriers, balance of payments, commercial policies, international finance, foreign exchange rates, foreign investments and international financial institutions. Prerequisite: MAEC 2212.

3 credits

**MAEC 3250 INTERMEDIATE STATISTICS**

Statistical techniques used in decision-making under uncertain situations: Decision analysis, prediction models, regression and correlation. Prerequisite: MAEC 2222.

3 credits

**MAEC 3330 ECONOMIC DEVELOPMENT OF PUERTO RICO**

Analysis of the models of economic development implemented throughout the history of Puerto Rico and their possibilities of future development on the basis of their present economic potentialities. Study of economic relations with the United States and the insertion of Puerto Rico into the global economy. Prerequisite: MAEC 2212.

3 credits

**MAEC 4210 ECONOMICS OF MULTINATIONAL FIRMS**

Operations of multinational firms and the economic analysis of conditions that facilitate or hinder their development.

3 credits

**MAEC 4213 MACROECONOMICS APPLIED TO BUSINESS**

Analysis of total economic activity and public policy and their effects on enterprise decision making. Prerequisite: MAEC 2212.

3 credits

**MAEC 4214 INTERMEDIATE ECONOMIC ANALYSIS (MICRO)**

Pricing processes in the private enterprise economy under various isolated and competitive markets. Emphasis on recent quantitative developments in the theory of demand and the firm. Prerequisites: MAEC 2140, 4213.

3 credits

**MAEC 4220 INTRODUCTION TO ECONOMETRY**

Introduction to the art and science of building and applying economic models using quantitative instruments. Requires additional time in an open lab. Prerequisites: MAEC 2222, 3240, 4213.

3 credits

**MAEC 4334 ENERGY RESOURCES AND ENVIRONMENTAL ADMINISTRATION**

Theoretical aspects of natural resource allocations stressing those with energy value. Discussion of topics such as inter-temporal methods of assigning resources, external problems applied to environmental economy, optimizing energy resources at the company level, and analysis of aspects of energy and environmental policy as they apply to business.

3 credits

**MAEC 4520 ECONOMIC DEVELOPMENT OF EMERGING AREAS**

Analysis of the environmental background of the economic growth of nations and their history, emphasizing problems of emerging areas. Prerequisite: MAEC 2211.

3 credits

**Courses in Mandarin (MAND)****MAND 1001 BASIC MANDARIN I**

Introduction to the phonological system of the language and the foundations of the writing system. Emphasis on oral production and development of vocabulary for effective communication in daily life situations.

4 credits

**MAND 1002 BASIC MANDARIN II**

Development of the phonological system of the language and the foundations of the writing system. Emphasis on oral production, reading and the development of vocabulary for practical purposes. Cultural aspects will be learned through cocurricular activities.

4 credits

**MAND 2021 INTERMEDIATE MANDARIN I**

Review of grammar and study of Mandarin composition. Emphasis on the oral language. Practice of reading at the intermediate level. Prerequisites: MAND 1002 or two years of high school Mandarin.

3 credits

**MAND 2022 INTERMEDIATE MANDARIN II**

Review of grammar and study of Mandarin composition. Emphasis on the oral language. Practice of reading at the intermediate level.

3 credits

**Courses in Marketing (MKTG)****MKTG 1210 INTRODUCTION TO MARKETING**

Discussion of basic concepts of integrated marketing from the conception of the product until its distribution and use. Identification of consumer needs through the process of goods exchange, services and ideas. Description of the variables that organization can and cannot control in the marketing environment.

3 credits

**MKTG 1220 INTRODUCTION TO AGRICULTURAL MARKETING**

Introduction to the marketing system from an agricultural perspective. The necessary operations for the distribution of agricultural goods and services from the producer to the consumer. Study of the controlled variables such as products, price, promotion and distribution as well as the non-controlled variables of an agricultural enterprise.

3 credits

**MKTG 2220 STRATEGIC 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 45 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 4240.

3 credits

**MKTG 4245 ELECTRONIC MARKETING**

Analysis, design, development and implementation of technological communication and its impact using cybernetic tools. Emphasis on marketing through Internet and related technological aspects. Application of the electronic communication base in a marketing plan. The design of a marketing plan with an electronic focus is required. Prerequisites: GEIC 1010, MKTG 2220, 4240.

3 credits

**MKTG 4246 PRODUCT MANAGEMENT**

Elements affecting product management. Analysis of the variables to consider when marketing efforts are coordinated towards a particular product or brand. Prerequisite: MKTG 2220.

3 credits

**MKTG 4248 SMALL BUSINESS MARKETING**

Marketing theories, principles, concepts and practices in small business. Discussion of articles and cases relative to the establishment of a business and its marketing strategies. External and internal variables that influence the development and marketing process of a small business. Prerequisites: MKTG 2220, 4243.

3 credits

**MKTG 4249 ADVANCED MARKETING RESEARCH**

Discussion and application of techniques for sampling, analysis and presentation of information obtained from different research designs. The role of research from the perspective of its usefulness in managerial decision-making.

3 credits

**MKTG 4910 INTERNSHIP**

Practical experience in the field of marketing supervised jointly by a university faculty member and a professional designated by the management of the practice center. The student is required to devote at least 90 hours to complete the work assigned. Prerequisites: Authorization from the Department Director, 24 credits approved in core courses and 24 credits in the major.

3 credits

**MKTG 4973 MARKETING SEMINAR**

Analysis of topics in marketing with emphasis on modern marketing trends. Topics will change according to student needs, skill development and new knowledge in the field for understanding and integrating current concepts and marketing dynamics. Prerequisites: MKTG 4243, 4244.

3 credits

**Courses in Materials Management (MMAT)****MMAT 2103 INTRODUCTION TO MATERIALS MANAGEMENT**

Introduction to the systems of planning, organization and control of the flow of materials. Includes the basic elements of inventory systems, available techniques for predicting demand and different types of operational environments. The interaction of the finished product is studied.

3 credits

**MMAT 3211 INVENTORY MANAGEMENT**

Planning and inventory control systems. Includes inventory decisions for independent and dependent demand, master production plan, materials requirement plan and capacity plan. Includes, in addition, the aspects of

management control of these systems, such as: information requirements for planning and control, performance and feedback of results. Practical applications of these concepts using a materials requirement plan. Prerequisites: GEIC 1010, MMAT 2103.

3 credits

#### **MMAT 3212 PLANNING AND PRODUCTION CONTROL**

The principles and techniques used for planning, controlling and evaluating production activities. Plans are studied at different time levels: strategic, short and long range, and feedback methods. Different forms of production (workshops, repetitive and process) are studied. Prerequisite: MMAT 3211.

3 credits

#### **MMAT 3220 PURCHASING MANAGEMENT**

Techniques related to the purchasing process. Bargaining and contracting in accordance with the commercial code and special laws of Puerto Rico. Identification and development of materials supply sources. Selection of suppliers, control and evaluation of their performance. Computerized purchasing systems, maintenance of a database and the interaction with the materials requirements plan. Prerequisite: MMAT 2103.

3 credits

#### **MMAT 4350 PLANNING OF BUSINESS RESOURCES**

The process necessary for implementing the materials requirements plan and the manufacturing resources plan from the world class point of view. Emphasis on information system processing, flow and integration. Prerequisites: GEIC 1010, MMAT 3212.

3 credits

#### **MMAT 4360 MANAGERIAL PRODUCTIVITY TECHNIQUES**

Managerial productivity strategies and techniques that that may lead an enterprise to low production costs and at the same time, to high-quality products. The Kanban inventory system and its comparison with the materials requirement plan. The classical concept of economic order quantity compared with the policy of not producing and buying by lot, but rather, part by part. Strategy for establishing reliability of suppliers with regard to deliveries and quality levels. Principles of quality management. Analysis of quality circles and analysis techniques. Improvement in productivity by computerized integrated management. Prerequisites: MMAT 3212.

3 credits

### **Courses in Mathematics (MATH)**

#### **MATH 1015 BASIC MATHEMATICS FOR LANDSCAPE DESIGN**

Metric decimal system, estimation and mathematical vocabulary: problem solving. Conversion from one system to another. Study of the fundamental concepts of geometry and trigonometry. Surface, volume and angle problem solving.

3 credits

#### **MATH 1020 BUSINESS MATHEMATICS**

Review of the basic principles of arithmetic such as decimals, percentages, calculus, squares and square roots.

3 credits

#### **MATH 1030 MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS**

Fundamental concepts of arithmetic, numerical systems and geometry. Metric system, mathematical estimates, vocabulary and problem solving. Use of calculators and computers. Prerequisite: GEMA 1000.

3 credits

#### **MATH 1500 PRECALCULUS**

Study of functions, with emphasis on linear, 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.

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.

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 discreet 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.

3 credits

**MATH 2251 CALCULUS I**

Limits of a function, the derivative, Rolle's theorem and the mean value theorem, application of the derivative. The definite integral and the fundamental theorem of calculus. Derivatives and integrals of trigonometric, exponential and logarithmic functions. Applications of the definite integral. Topics of analytical geometry: the circle, parabola, ellipse, and hyperbola. Prerequisite: MATH 1500.

5 credits

**MATH 2252 CALCULUS II**

Study of derivatives and integrals of inverse trigonometric, and hyperbolic functions. Techniques of integration and polar coordinates. Application of arc length in polar form. Study of improper integrals, the 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 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 3080 TOPICS IN GEOMETRY**

Basics of mathematical logic, nature of proof, and some Euclidean geometry: finite geometries, geometric transformations, sets and convex bodies. Basics of non-Euclidean geometries; hyperbolic, elliptic and projective geometries; geometric topology. Prerequisite: MATH 2251.

3 credits

**MATH 3091 MATHEMATICAL STATISTICS I**

Sample spaces, axioms and elementary theorems of conditional probability, Bayes' theorem, probability distributions and their properties. Mathematical expectations. Mean and variance, moment-generating functions, transformation of random variables. Chebyshev's inequality, the law of large numbers, the Central Limit Theorem. Regression and correlation. Prerequisite: MATH 2251.

3 credits

**MATH 3092 MATHEMATICAL STATISTICS II**

Estimation, hypothesis testing, order statistics. Analysis of variance (ANOVA), factorial experiments, simple and multiple regression. Analysis of covariance (ANACOVA). Prerequisite: MATH 3091.

3 credits

**MATH 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**

Whole numbers. Maximum common divisor and prime factorization. Congruencies and their application. Multiplication functions. Primitive roots and primacy tests. Diophantine equations. Applications to cryptography. Use of computers in an open laboratory. Prerequisite: MATH 2251.

3 credits

**MATH 3250 CALCULUS III**

Study of the vectors in plane and in space. Cylindrical and spherical coordinates. The calculus of functions of several independent variables: limit, continuity, partial differentiation, chain rule gradient, directional differentiation, tangents planes and normal lines. Determination of extreme values of a two variable function. Multiple integration of rectangular, cylindrical and spherical coordinates. Surface area and volume. Study of integration in vectorial campus: line integrals, divergence theorem and the Green and Stokes theorems. Prerequisite: MATH 2252.

3 credits

**MATH 3350 LINEAR ALGEBRA**

Systems of linear equations, matrices and determinants, vector spaces, linear dependency, bases, dimension, linear transformations, quadratic forms, eigen values and eigen vectors. Numeric methods and applications. Prerequisite: MATH 2251.

3 credits

**MATH 3370 INTRODUCTION TO MATHEMATICAL LOGIC**

Calculus of sets, truth rules, propositional calculus. Introduction to axiomatic systems. Prerequisite: MATH 1500.

3 credits

**MATH 3400 DIFFERENTIAL EQUATIONS**

Study and application of first order differential equations; linear equations with constant coefficients; linear differential equations of the second and highest-order. Study of mathematical models leading to systems of equations and their applications. Numerical approximations. Study of Laplace transforms, Fourier series and orthogonal functions. Prerequisite: MATH 2252.

3 credits

**MATH 3710 INTRODUCTION TO MATHEMATICAL MODELS**

Concept of a mathematical model. Utility and limitations of models. The three steps: 1) abstraction, idealization and formulation; 2) solution of the mathematical problem; 3) relevance of the solution with respect to the original problem. The student will construct and analyze a model for a particular problem. Prerequisite: MATH 3091.

3 credits

**MATH 3810 HISTORY OF MATHEMATICS**

Development of mathematics through the centuries. References to astronomy, quantum mechanics and mathematical physics. Prerequisite: MATH 2251.

3 credits

**MATH 4100 APPLIED ALGEBRA**

Sets, binary relations, set functions, basic graph terminology. Partial order, Boolean Algebras and their relationship to the theory of circuits; machines of finite state; formal languages recognized for machines; groups, semigroups and monoid applications; modular arithmetic, the Euclidean algorithm. Prerequisite: MATH 3350.

3 credits

**MATH 4151 NUMERICAL ANALYSIS I**

Finite differences, interpolation with equal and unequal intervals, central differences, sums, methods of numerical integration and differentiation, sequential approximations or techniques of iteration, matrices and determinants, methods of numerical approximation for systems of linear equations. Prerequisite: MATH 2252.

3 credits

**MATH 4152 NUMERICAL ANALYSIS II**

Study of difference equations, numerical integration of differential equations, approximation of solutions; partial differential equations. Analysis of finite elements; error analysis. Proofs of the use and limitations of these methods in the computer. Prerequisites: MATH 3250, 3400, 4151 and a programming course in a high level language.

3 credits

**MATH 4391 ABSTRACT ALGEBRA I**

Groups, normal subgroups, quotient groups, Cayley's theorem, homomorphism theorems. Ideals and quotient rings. Fields. Prerequisites: MATH 3350 and MATH 2000 or COMP 2501.

3 credits

**MATH 4392 ABSTRACT ALGEBRA II**

Groups of geometry and analysis, Sylow theorems, application of Sylow's theory, torsion groups, rings of polynomials, extension fields, elements of the Galois theory. Prerequisite: MATH 4391.

3 credits

**MATH 4430 SEMINAR FOR SECONDARY SCHOOL TEACHERS**

Selection of relevant topics for future high school mathematics teachers. Development of mathematics and its relation to other disciplines. Emphasis on methods of solving problems such as the Polya method. Use of manipulative and available technology. Prerequisite: MATH 2251.

3 credits

**MATH 4470 COMPLEX ANALYSIS**

Complex differentiation and antidifferentiation, integral formulas of Cauchy-Riemann and related theorems. Taylor and Laurent series, residues and conformal transformations. Prerequisite: MATH 3250.

3 credits

**MATH 4550 ADVANCED CALCULUS**

Fundamental theorems of continuous functions. Introduction to topology in Euclidean  $R_n$  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 4970 INTEGRATION SEMINAR**

Integration of the knowledge acquired in the mathematics courses through the preparation and presentation of an oral and written creative work, using primarily mathematical articles or practical problems related to the major study area of the student. Prerequisite: have approved 38 credits in mathematics.

1 credit

**Courses in Mechanical Engineering (MECN)****MECN 3005 VECTORIAL MECHANICS FOR ENGINEERS: STATICS**

Analysis of force systems. Application of the law of balance to particles and rigid bodies. Emphasis on problem solving in two and three dimensions. Calculation of the gravity center, centroid and moment of inertia. Analysis of simple structures. Includes distributed weights, internal forces and friction. Analysis of beams under different types of loads and supports. Prerequisite: PHYS 3311.

3 credits

**MECN 3010 VECTORIAL MECHANICS FOR ENGINEERS: DYNAMICS**

Analysis of fluid properties. Use of fluids static to manometry and hydrostatic forces. Application of the principles of mass and energy conservation, conservation of impulse and amount of linear movement in the solution of dynamics of fluid problems. Development of methodologies for dimensional analysis, similarity and modeling. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: MECN 3010, MATH 3400.

3 credits

**MECN 3110 FLUID MECHANICS AND APPLICATIONS**

Analysis of fluid properties. Use of fluids static to manometry and hydrostatic forces. Application of the principles of mass and energy conservation, conservation of impulse and amount of linear movement in the solution of dynamics of fluid problems. Development of methodologies for dimensional analysis, similarity and modeling. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: MECN 3010, MATH 3400.

4 credits

**MECN 3135 SOLID MECHANICS**

Analysis of stress and strain due to axial, torsional, flexural, transversal and combined loads. Analysis of beams with defined and undefined loads. Development of the buckling of columns theory. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: MECN 3010.

4 credits

**MECN 3140 POWER SYSTEMS OF FLUIDS**

Application of the dynamic principles of fluids in power systems that include the flow of fluids. Integration of the techniques of design and analysis of turbo machines: turbines, compressors, pumps and fans. Study of control systems by means of valves. Plan reading applied to power fluid systems. Prerequisite: MECN 3110.

3 credits

**MECN 3160 DYNAMICS OF MOTOR VEHICLES**

Analysis of the mechanical principles that govern the dynamic performance of motor vehicles, such as, acceleration, braking, turning, among others. Includes the study of the primary mechanical systems in motor vehicles and how they influence their performance. Prerequisite: MECN 3010.

3 credits

**MECN 3200 MECHATRONICS**

Analysis of the concepts of mechatronics with emphasis on analog and digital electronics. Study of the sensors and actuators. Emphasis on resistant, capacitive, inductive, and infrared sensors, direct current engines control, servomotors and pneumatic systems. Design of programs for microcontroller and their applications in electromechanical systems. Prerequisite: ENGR 3360.

3 credits

**MECN 3350 EFFICIENCY AIRPLANE DESIGN**

Study of the design philosophy applied to the final design of airplanes, through analysis of aerodynamics principles relating sustentation and drag force in two and three dimensions in finite aerodynamic surfaces. Discussion of the methods of propulsion in airplanes. Application of the equations of motion for accelerated and in-balance flights. Prerequisites: MECN 3110 for students in mechanical engineering or ENGR 3340, ENGR 3343 and MATH 3400 for students in the other engineering disciplines.

3 credits

**MECN 3400 ANALYSIS AND DESIGN OF SPACE MISSIONS**

Analysis of the fundamental characteristics of the orbital motion of satellites and spacecraft. Emphasis on system of aerospace engineering: design, requirements, systems, processes, integration, case studies and ethics. Includes analysis of space missions. Prerequisites: MECN 3110 for students in mechanical engineering or ENGR 3340, ENGR 3343 and MATH 3400 for students in the other engineering disciplines.

3 credits

**MECN 3500 NUMERICAL METHODS FOR ENGINEERING**

Study of errors in calculations. Analysis of the numerical methods used in engineering problem solving. Emphasis on the solution of linear and non linear equation systems, arrangement of curves, interpolation, integration and derivation by numerical approximation, numerical integration of differential equations and techniques of optimization. Application of computerized programs for problem solving. Prerequisites: MECN 3110, MECN 3135, MATH 3400.

3 credits

**MECN 3600 GAS TURBINES AND PROPULSION SYSTEMS**

Application of the fundamental concepts of thermodynamics, mechanics of fluids, aerodynamics and theory of flow to the analysis and design of propulsion motors of air and space vehicles. Includes the general classification of the propulsion systems, calculation of the force and propulsive power in an arbitrary environment and output. Study and analysis of the components: inlet duct, compressor, combustion chamber, turbine and exit. Prerequisites: MECN 3350 and MECN 3400.

3 credits

**MECN 4100 MECHANICAL VIBRATIONS**

Analysis of linear systems with one or more degrees of freedom subjected to free and forced vibrations. Includes matrix representations of multidimensional systems. Application of energy methods and advanced techniques for dynamic systems. Analysis of nonlinear and random systems. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: MECN 3500.

4 credits

**MECN 4110 MECHANISMS DESIGN**

Analysis of mobility and kinematics of mechanisms. Application of the graphical and computerized techniques of position analysis, speed, and acceleration in mechanisms. Design of levers and gears. Introduction to the synthesis of mechanisms. Requires 30 hours of lecture and 30 hours of lab. Prerequisites: ENGR 2220, MECN 3010.

3 credits

**MECN 4121 DESIGN OF MACHINE ELEMENTS I**

Analysis of solid mechanic concepts such as loads, stress and deformations in the design of machine components and elastic methods for the determination of deflections in beams and buckling of columns. Includes the study of the theories of fault and safety factors. Discussion of impact loads, fatigue, corrosion and wear-down in mechanical components. Prerequisites: ENGR 3350, MECN 3135, 4110.

3 credits

**MECN 4122 DESIGN OF MACHINE ELEMENTS II**

Analysis of problems in the design of machine elements. Includes design of axles, couplings, wedges, springs, screws, bushings, clutches and brakes. Use of engineering and manufacturing codes and catalogs for the selection of mechanical components. Prerequisite: MECN 4121.

3 credits

**MECN 4130 COMPUTER AIDED MANUFACTURING DESIGN**

Application of modern techniques used in computer aided design and manufacturing systems. Emphasis on numerical methods, solutions to nonlinear equations, finite elements, and optimization. Modeling and simulation of mechanical systems. Use of techniques and methods for the design of components and computer parts. Prerequisites: ENGR 2220, MECN 4122.

3 credits

**MECN 4140 MANUFACTURING PROCESSES**

Analysis of the processes and materials of manufacturing. Application of the following processes: smelting, plastic and metal shaping, thermal treatment, welding and powder metallurgy. Includes the processes of turning, milling, cutting and polishing, among others. Analysis of integrated and automated systems for manufacturing. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: ENGR 3350.

4 credits

**MECN 4150 MANUFACTURING DESIGN**

Analysis of the concepts of simultaneous engineering. Application of manufacturing processes knowledge in the product design phase to improve quality and reduce costs. Includes methods of documenting design for manufacture, quality control, selection of dimensions, tolerance and assembly order. Prerequisites: ENGR 3200, MECN 4140.

3 credits

**MECN 4201 THERMODYNAMICS I**

Analysis of the basic concepts of thermodynamics. Includes the study of the properties of pure substances and the equation of the ideal state of gas. Analysis of the transfer of energy by heat, work and mass. Application of the first and second law of thermodynamics. Analysis of the Carnot Cycle and entropy. Prerequisites: CHEM 2115, PHYS 3312.

3 credits

**MECN 4202 THERMODYNAMICS II**

Application of the fundamental thermodynamic concepts for the study and analysis of power cycles and refrigeration. Analysis of energy and mixtures of gases. Use of the psychometric chart and theory for the analysis of air conditioning processes. Analysis of combustion, thermo-chemical and heat equilibrium. Study of high speed flow of gas thermodynamics. Prerequisites: MECN 4201, MATH 3250.

3 credits

**MECN 4210 HEAT TRANSFER**

Analysis of heat transfer mechanisms: conduction, convection and radiation. Study of convection fundamentals and analysis of the empirical coefficients for free and forced convection. Emphasis on physical principles of thermal radiation, surface properties and geometric characteristics. Analysis of heat transfer with phase changes. Heat exchangers design. Prerequisites: MECN 3110, 4201.

3 credits

**MECN 4220 DESIGN OF THERMAL SYSTEMS**

Thermal systems analysis and designs. Emphasis on heat exchangers, steam generators, cooling towers and air conditioning and refrigeration systems. Use of computational tools for the solution of design problems. Prerequisites: MECN 4202, 4210.

3 credits

**MECN 4230 AIR CONDITIONING AND REFRIGERATION**

Analysis of refrigeration and air conditioning fundamentals. Emphasis on psychometric computations, comfort and load calculations. Identification of industrial and commercial refrigeration requirements. Selection of equipment: pumps, fans, louvers and heat exchangers. Prerequisites: MECN 4202, 4210.

3 credits

**MECN 4240 SOLAR ENERGY APPLICATIONS**

Application of the principles of outer-space solar radiation and atmospheric irradiation. Use of prediction and mean value estimates for irradiation by means of mathematical models using tabulated data. Discussion of fluid mechanics and heat-transfer mechanisms, characteristics of materials and surfaces and their impact on energy transfer. Emphasis on economic feasibility analysis. Applications of solar energy in different geographic scenarios. Prerequisite: MECN 4210.

3 credits

**MECN 4300 ENGINEERING MATERIALS**

Analysis of metal hardening mechanisms. Evaluation of the mechanical, thermal, electrical, magnetic and optic behavior of materials. Study of the kinetics of phase transformations. Emphasis on steel heat treatments. Includes the study of structures, properties and applications of metals, ceramics, semi conductors, polymers and composites. Requires 45 hours of lecture and 30 hours of lab. Prerequisites: ENGR 3350, MECN 3135.

4 credits

**MECN 4310 PLASTICS ENGINEERING**

Analysis of the chemical-physical properties of plastics. Includes determination of their stress and strain. Applications in design and manufacture of plastics. Manufacturing processes include injection, extrusion, cold stamping, thermosetting, thermomolding, rotational and blow molding. Prerequisite: MECN 4140.

3 credits

**MECN 4320 METAL FATIGUE**

Analysis of macro and micro-structural concepts in design, and of the mechanisms and theories of fault by fatigue. Emphasis on residual stress, stress concentration, cumulative damage analysis and life utility forecast. Explanation of experimental methods for the study of faults by metal fatigue. Use of computers for fatigue problem solving. Prerequisites: MECN 3135, 4300.

3 credits

**MECN 4330 CORROSION CONTROL**

Application of electrochemical principles and mechanisms of corrosion. Includes the protection and prevention of metal corrosion. Temperature, metallurgy and environmental effects on metal corrosion. Emphasis on preventive techniques: cathodic protection, proper materials and laminating selection. Prerequisite: MECN 4300.

3 credits

**MECN 4340 FRACTURE MECHANICS**

Application of mechanical fracture concepts in the design of mechanical structures. Emphasis on the relationship between critical crack size, critical stress and critical intensity factors. Analysis of environmental effects, crack propagation, and fracture tenacity. Explanation of the experimental methods for fault by fractures analysis. Prerequisite: MECN 4300.

3 credits

**MECN 4350 AEROSPACE STRUCTURES AND MATERIALS**

Analysis of the properties of the wing and fuselage sections. Emphasis on the analysis of beams and plates under buckling conditions. Analysis of torsion, sharp bending and asymmetric bending in multiple sections with thin and lengthy walls. Includes the study of structures, properties and manufacture of materials commonly used in the aerospace industry. Prerequisites: MECN 3350, 3400 and ENGR 3350.

3 credits

**MECN 4405 ANALYSIS IN COMPUTER ASSISTED ENGINEERING**

Study of methodologies for the integration of design cycle computer analysis in engineering. Emphasis on modeling solids and analysis of finite elements to solve stress problems, structural analysis, fluids and heat transfer. Application of commercial computerized programs for problem solving in mechanical engineering. Prerequisites: MECN 4121, 4210.

3 credits

**MECN 4600 MECHANICAL MEASUREMENTS AND INSTRUMENTATION**

Analysis of measurement fundamentals. Emphasis on instrument types, characteristics, instrumentation diagrams and statistical analysis of measurement. Study of mechanical and electrical sensors. Emphasis on pressure, level, temperature and flow gauges, and other non conventional measures. Application of computerized techniques for measuring, signal conditioning and data acquisition in industrial processes and electromechanical systems. Requires 45 hours of lecture and 30 hours of lab. Prerequisites: ENGR 3200, ENGR 3360.

4 credits

**MECN 4610 AUTOMATIC CONTROL SYSTEMS**

Analysis and design of control systems in continuous time. Emphasis on the mathematical modeling of dynamic systems, the Laplace transform, representation of systems by means of block diagrams, variables of states, stability of system and control system characteristics. Design of controllers. Emphasis on proportional, integral, and derivative controllers (PID). Application of control to electromechanical industrial processes and systems. Prerequisite: MECN 4600.

3 credits

**MECN 4620 DYNAMICS AND CONTROL OF AEROSPACE VEHICLES**

Study and analysis of the dynamic characteristics, designing and control aspects of aerospace vehicles. Emphasis on the analysis of longitudinal, lateral and directional stability and control during atmospheric flights. Includes decision analysis and position control of spacecraft. Prerequisites: MECN 3350, MECN 3400.

3 credits

**MECN 4810 PROJECT DESIGN IN MECHANICAL ENGINEERING**

Integration of the fundamental knowledge of mechanical engineering for the solution of problems. Study and application of the methodology of design, economic analysis and optimization with emphasis on teamwork and effective oral and written communication. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: authorization of the Director of the Department.

4 credits

**MECN 4820 AEROSPACE EXPERIENCE**

Integration of the concepts and methods of analyses used in aerospace engineering. Emphasis on the design of spacecrafts. Includes the use of active learning as a tool for the integration of theoretical concepts with the practice exercises by carrying out a project focused on the aerospace area. Prerequisites: MECN 4620, 4350.

3 credits

**MECN 4910 PRACTICE IN MECHANICAL ENGINEERING**

Practice in a mechanical engineering work scenario in a private industry or in government, supervised by an engineer of the practice center and by a faculty member. Requires a minimum of 120 hours of practice and the preparation of a comprehensive report based on the student's real experience in the field of mechanical engineering. Prerequisite: Authorization of the professor in charge of the course.

3 credits

**Courses in Medical Emergencies (EMMT)****EMMT 1161 FUNCTIONS OF THE PARAMEDIC**

Exposure of the student to the nature of the paramedic's practice. Discussion of the roles and the medical, ethical and, legal responsibilities, as well as the essential components for the control of different scenarios in which the practice is carried out.

2 credits

**EMMT 1162 PRACTICE IN FUNCTIONS OF THE PARAMEDIC**

Development of skills in the preparation of clinical history, physical examination of the patient, and communicating effectively the information obtained. Practice in the management of scene control and transportation of patient. Requires 30 hours of lab. Corequisite: EMMT 1161.

1 credit

**EMMT 1171 BIOMEDIC I**

Study of principles and basic concepts of human anatomy. Emphasis on the anatomy of the intergummentary, muscle-skeletal, nervous, cardiovascular, and respiratory systems of the adult and child.

2 credits

**EMMT 1172 PRACTICE IN BIOMEDIC I**

Development of the skills to identify anatomic structures of the human body. Emphasis on the anatomic structures of the respiratory system in which the procedures of tracheotomy and circothyrotomy, and the techniques for endotracheal intubation take place. Practice of intubation techniques and evaluation of the respiratory pattern. Requires 30 hours of lab. Corequisite: EMMT 1171.

1 credit

**EMMT 1260 BIOMEDIC II**

Studies related to the physiology and function of each of the anatomic structures that make up of the human body. Discussion of pathologies of greater incidence, their care and how to handle the scene in order to prevent complications and preserve the life of the patient.

3 credits

**EMMT 1271 MEDICAL EMERGENCIES I**

Study of emergencies related to the respiratory and cardiovascular systems. Emphasis in the study of signs and symptoms indicative of emergency in these systems.

2 credits

**EMMT 1272 PRACTICE IN MEDICAL EMERGENCIES I**

Development of skills and practice of techniques, procedures, and use of equipment in the management of respiratory and cardiovascular emergencies. Requires 60 hours of lab. Corequisite: EMMT 1271.

2 credits

**EMMT 1280 COMMUNICATION AND DISPATCH TECHNIQUES**

Development of skills in the transmission of and reception from radio equipment. Study of rules, types of systems, procedures, and ways of operation of radio communication system. Practice on dispatch techniques. Management of radio communication and dispatch. Requires 60 hours of lab.

2 credits

**EMMT 1290 HANDLING OF PATIENTS WITH EMOTIONAL PROBLEMS**

Study of the most common emotional problems that the medical emergency technician intervenes with. Discussion of basic components of the psychosocial history of the patient, strategies and modalities for handling these situations and the implied ethical and legal aspects.

2 credits

**EMMT 2161 PHARMACOLOGY IN MEDICAL EMERGENCIES**

The basic concepts of dosage, and pharmacology, and related medical terminology. Emphasis in pharmacodynamics and pharmacokinetics of medicines. Discussion of legal aspects related to the administration of medicines. Prerequisite: GEMA 1000.

2 credits

**EMMT 2162 PRACTICE IN PHARMACOLOGY IN MEDICAL EMERGENCIES**

The duties of the medical emergency technician in the preparation and administration of medicines orally, intravenously, intramuscularly, and others. Requires 60 hours of lab. Corequisite: EMMT 2161.

2 credits

**EMMT 2171 GYNECOLOGICAL-OBSTETRICAL AND NEWBORN EMERGENCIES**

The anatomy and physiology of the female reproductive system, physiology of pregnancy, and gynecological-obstetrical emergencies. Emphasis on the common processes in complications of pregnancy and labor. Discussion of the components of immediate evaluation of the newborn and possible complications.

2 credits

**EMMT 2172 PRACTICE IN GYNECOLOGICAL-OBSTETRICAL AND NEWBORN EMERGENCIES**

Development of technical skills in the intervention and management of labor and in situations of gynecological emergencies, such as hemorrhages and abortion, among others. Immediate care for the normal newborn and management of complications. Practice in the use of equipment and material for the management of labor and the newborn. Requires 60 hours of lab. Corequisite: EMMT 2171.

2 credits

**EMMT 2181 MEDICAL EMERGENCIES II**

Study of the management of emergencies related to soft tissue injuries, damage to the muscle-skeletal, neurological and endocrine systems. Knowledge and skills needed for immediate attention on the scene to persons of any age with dysfunction or trauma to those systems.

3 credits

**EMMT 2182 PRACTICE IN MEDICAL EMERGENCIES II**

Development of skills to give attention to persons with injuries to the soft tissue and to the muscle-skeletal, neurological, and endocrine systems. Practice of techniques and procedures used in the treatment of wounds, burns, fractures, and traumas in different parts of the head, hemorrhages, dislocations, convulsions, and coma. Requires 60 hours of lab. Corequisite: EMMT 2181. Prerequisites: All previous courses.

2 credits

**EMMT 2190 EXTRICATION AND RESCUE**

The fundamentals and general principles of extrication and rescue. Practice of techniques for rescuing patients. Integrated practice of the types of intervention and paramedic teamwork in the management of emergencies in disaster cases. Requires 60 hours of lab.

2 credits

**EMMT 2261 MEDICAL URGENCIES**

Study of emergency situations, such as diabetic emergencies, anaphylactic reactions, environmental emergencies or from radiation exposure. Focus on abdominal pathologies, genitourinary problems, and the emergencies of geriatric patients. Study of the most common transmissible diseases. Prerequisites: All previous courses.

3 credits

**EMMT 2262 PRACTICE IN MEDICAL URGENCIES**

Development of skills in the management of toxicological emergencies. Practice of techniques in the elimination of toxic agents in the organism, and management of emergencies for the ingestion of alcohol or addictive drugs. Requires 30 hours of lab. Corequisite: EMMT 2261. Prerequisites: All previous courses.

1 credit

**EMMT 2910 FIELD INTERNSHIP**

Integration of knowledge in the different scenarios related with the practice of medical emergencies. Integrated practices in the application of previously acquired clinical skills, refinement of communications skills, problem solving, decision-making, and exercise of clinical judgment. Student will reinforce their identity as paramedics and the ability to manage tension on the scene and in any clinical problem. Values and attitudes are strengthened in the work environment. Requires 180 hours of lab. Prerequisites: All previous courses.

6 credits

**Courses in Medical Sonography (SONO)****SONO 3000 BASIC PRINCIPLES OF ULTRASOUND**

Study of the basic principles of ultrasound as a diagnosis modality. Includes the terminology and the advanced technology.

3 credits

**SONO 3010 PHYSICS AND INSTRUMENTATION OF ULTRASOUND**

Study of the basic concepts of the physics of ultrasound and generation of ultrasonic waves. Emphasis on the study of the reflection methods of ultrasonic energy, variation in the patterns of the sound beam, interfaces with techniques of basic instrumentation and the Doppler effect. Includes the discussion of the basic types of equipment and quality assurance.

3 credits

**SONO 3021 IMAGES BY ULTRASOUND I: ABDOMEN**

Study of the clinical applications of ultrasound for the area of the abdomen and retroperitoneal. Emphasis on the interpretation of clinical laboratory tests, related signs and symptoms and normal sonographic patterns. Includes a section of laboratory in the basic techniques of tracking and protocol. Requires 30 hours of lecture and 45 hours of lab. Prerequisites: SONO 3000, 3010.

3 credits

**SONO 3022 IMAGES BY ULTRASOUND II: OB/GYN - PEDIATRIC**

Study of the clinical applications of ultrasound in gynecology specialties. Discussion of the related clinical symptoms, normal changes in the pregnant woman and the fetal development throughout the gestation process. Emphasis on the parameters of evaluation of anatomical and functional normality, in addition to the evaluation of the neonatal and pediatric development. Includes a section of laboratory in the basic techniques of tracking and protocol. Requires 30 hours of lecture and 60 hours of lab. Prerequisites: SONO 3010, 3021.

4 credits

**SONO 4000 HIGH RESOLUTION SONOGRAPHERIES**

Study of high resolution ultrasound. Emphasis on the analysis of the sonographies of the breasts, neonatal head, thyroid, testicles and prostate. Includes the innovations in instrumentation and sonographic applications. Prerequisite: SONO 3010.

3 credits

**SONO 4010 MUSCLE/SKELETAL SURFACE STRUCTURES SONOGRAPHY**

Study of the clinical applications of ultrasound in the skeletal and muscle system for the evaluation of the most frequent pathologies. Discussion of the tendinous pathologies in the shoulder, elbow, fist, knee and ankle, in addition to the diverse traumatic muscular injuries and pathologies of infants. Emphasis on the study of the clinical applications of ultrasound for surface structures of the body. Includes a section of laboratory in the basic techniques of tracking and protocol. Prerequisite: SONO 3010.

3 credits

**SONO 4911 INTERNSHIP IN ULTRASOUND I**

Clinical experience aimed to develop and improve the professional skills acquired in previous courses for carrying out sonographic procedures with emphasis on the area of the abdomen. The student will be under the supervision of a qualified sonographer. Requires one hundred eighty (180) hours of practice. Prerequisite: SONO 3010. Corequisite: SONO 3021.

3 credits

**SONO 4912 INTERNSHIP IN ULTRASOUND II**

Clinical experience aimed to develop and improve the professional skills acquired in previous courses for carrying out sonographic procedures with emphasis on obstetrical, gynecological and pediatric examinations. The student will be under the supervision of a qualified sonographer. Requires one hundred eighty (180) hours of practice. Prerequisite: SONO 4911. Corequisite: SONO 3022.

3 credits

**SONO 4913 INTERNSHIP IN ULTRASOUND III**

Clinical experience aimed to develop and improve the professional skills acquired in previous courses for carrying out sonographic procedures with emphasis on the skeletal and muscular system and the surface structures of the body. The student will be under the supervision of a qualified sonographer. Requires one hundred eighty (180) hours of practice. Prerequisite: SONO 4912. Corequisite: SONO 4010.

3 credits

**SONO 4045 INTRODUCTION TO THE CARDIAC AND VASCULAR SONOGRAPHY**

Study of the vascular and cardiac anatomy of sonographic interest. Includes terminology and interpretation of echocardiograms.

3 credits

**SONO 4055 CARDIOVASCULAR PATHOPHYSIOLOGY**

Advanced study of the structure, function and pathologies of the vascular and cardiac anatomy of sonographic interest. Emphasis on the detection and analysis of cardiovascular disorders such as, cardiomyopathies, congenital defects, among others. Prerequisite: SONO 4045.

3 credits

**SONO 4065 INTERMEDIATE VASCULAR SONOGRAPHY**

Study of the arterial and venous anatomy, vascular anatomy, protocols of vascular image, basic techniques of tracking and manipulation of the transducer. Emphasis on the B-Mode Image, interpretation of color image and analysis of the Doppler spectral waves. Includes the detection and the analysis of cardiovascular disorders, vascular diseases and their effect on the flow of blood. Prerequisites: SONO 4045, 4055.

3 credits

**SONO 4075 ADVANCED VASCULAR SONOGRAPHY**

Advanced study of the anatomy and vascular physiology. Discussion of the symptoms of venous and arterial diseases. Includes the tracking techniques and protocols used to diagnose vascular pathologies. Prerequisites: SONO 4045, 4055, 4065.

3 credits

**SONO 4914 INTERNSHIP IN VASCULAR ULTRASOUND**

Clinical experience aimed to develop and improve the professional skills acquired in previous courses of vascular sonography for carrying out sonographic procedures with emphasis on the vascular structures of the body. The student

will be under the supervision of a qualified sonographer. Requires three hundred sixty (360) hours of practice. Prerequisites: SONO 4045, 4055, 4065, 4075.

3 credits

## **Courses in Medical Technology (MEDT)**

### **MEDT 4501 BASIC PRINCIPLES, STATISTICS AND MOLECULAR TECHNIQUES IN THE CLINICAL LABORATORY**

Discussion of basic techniques and concepts of clinical analysis and the associate instrumentation. Includes concepts of molecular biology with emphasis on applied methodology. Study of elements of assessment programs of quality, mathematics, statistics and security of the clinical laboratory. The course consists of 90 hours of lecture-lab and problem solving.

3 credits

### **MEDT 4510 CLINICAL CHEMISTRY, PATHOLOGY AND MOLECULAR DIAGNOSIS**

Discussion of biochemical concepts, principles of analytical, qualitative and quantitative methods for the determination of important clinical compounds in blood and other fluids. Correlation of the results of these tests with the normal physiology and the pathological processes. Molecular diagnosis techniques in acquired or inherited conditions. Assessment quality concepts and security norms. The course consists of 120 hours of lecture-lab and case studies.

4 credits

### **MEDT 4520 BODY FLUIDS**

Review of physical, chemical and biological properties of the fluids the of the human body including the spinal, seminal, synovial, transuded and exuded fluids, urine and others. Emphasis on subjects of anatomy, physiology, pathophysiology and the clinical application. Assessment quality concepts and security norms. The course consists of 30 hours of lecture-lab and the study of clinical cases.

1 credit

### **MEDT 4531 CLINICAL IMMUNOLOGY**

Description of the immune response and its relation to the pathological process and disease diagnosis. Emphasis on immunological and molecular methods in the detection and confirmation of immunopathology. Assessment quality concepts and security norms. The course consists of 60 hours of lecture-lab.

2 credits

### **MEDT 4532 BLOOD BANKING**

Application of the donation processes, hemotherapy, immunogenetic systems and identification of antibodies. Legal medical and ethical aspects, procedures and emergent technology in the diagnosis and treatment of pathological conditions, administration of problems and discrepancies are included. Assessment quality concepts and security norms. The course consists of 90 hours of lecture-lab and case studies.

3 credits

### **MEDT 4540 HEMATOLOGY, COAGULATION AND MOLECULAR DIAGNOSIS IN HEMATOPATHOLOGY**

Discussion of the hematopoietic process. Emphasis on the identification of normal and abnormal elements. Study of the coagulation mechanism and homeostatic conditions and the procedures in the diagnosis, classification, treatment, and molecular diagnosis of hematopathology. Assessment quality concepts and security norms. The course consists of 120 hours of lecture-lab and case studies.

4 credits

### **MEDT 4560 MYCOLOGY AND VIROLOGY**

Explanation of morphologic and biological characteristics of viral and mycotic agents of medical importance. Discussion on the collection and the handling of samples and laboratory methods, transmission modes, epidemiology, pathology, disease prevention and control. Assessment quality concepts and security norms. The course consists of 30 hours of lecture-lab and the study of clinical cases.

1 credit

**MEDT 4570 CLINICAL BACTERIOLOGY AND MOLECULAR DIAGNOSIS OF INFECTIOUS DISEASES**

Description of laboratory theory and procedures related to the isolation, identification, etiology, the epidemic, the pathogenesis and immunology of clinical bacteriology. Application of the fundamental principles of molecular diagnosis. Assessment quality concepts and security norms. The course consists of 120 hours of lecture-lab and the study of clinical cases.

4 credits

**MEDT 4585 CLINICAL PARASITOLOGY**

Discussion of the taxonomy, morphology and the life cycle of parasites of medical importance in humans. Identification of clinical signs and symptoms, treatment and epidemiology. Study of the collection and transportation of samples and laboratory methods used to detect and to identify parasites. Assessment quality concepts and security norms. The course consists of 60 hours of lecture-lab and the study of clinical cases.

2 credits

**MEDT 4593 LABORATORY ADMINISTRATION, ETHICS AND EDUCATION**

Discussion of administration concepts, information systems, professional ethics, personnel recruitment and evaluation, laws and regulations governing the laboratory and the profession. Evaluation of the educational process and the effectiveness of teaching strategies. The course consists of 60 hours of lecture-lab and case studies.

2 credits

**MEDT 4595 ADVANCED SEMINAR AND CLINICAL RESEARCH**

Design and development of an independent project within an area of the sciences of the clinical laboratory. Integration of the resources for the search for information and the design of the research work. Evaluation and presentation of articles published in scientific magazines or the analysis of clinical cases. Independent studies and lectures on specialized subjects or those related to previous courses. The approval of a comprehensive final examination is required. The course consists of 30 hours of lecture, discussion and presentation of articles and clinical cases.

1 credit

**MEDT 4914 CLINICAL PRACTICE IN URINALYSIS**

Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 35 hours of practice is required. Prerequisite: MEDT 4520.

1 credit

**MEDT 4915 CLINICAL PRACTICE IN BLOOD BANKING**

Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 105 hours of practice is required. Prerequisite: MEDT 4532.

3 credits

**MEDT 4916 CLINICAL PRACTICE IN IMMUNOLOGY AND SEROLOGY**

Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 70 hours of practice is required. Prerequisite: MEDT 4531.

2 credits

**MEDT 4919 CLINICAL PRACTICE IN PARASITOLOGY**

Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 35 hours of practice is required. Prerequisite: MEDT 4585.

1 credit

**MEDT 4921 PRACTICE IN CLINICAL CHEMISTRY**

Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 140 hours of practice is required. Prerequisite: MEDT 4510.

4 credits

**MEDT 4922 CLINICAL PRACTICE IN HEMATOLOGY AND COAGULATION**

Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 140 hours of practice is required. Prerequisite: MEDT 4540.

4 credits

**MEDT 4923 CLINICAL PRACTICE IN MICROBIOLOGY**

Exposition of the knowledge acquired in the urinalysis area using routine analytical procedures and vanguard technology in a clinical environment. Application of ethical concepts, quality assessment and security norms. A minimum of 140 hours of practice is required. Prerequisites: MEDT 4560, 4570.

4 credits

## **Courses in Microbiology (MICR)**

**MICR 3211 MICROBIAL PHYSIOLOGY**

Study of the functions and processes of microorganisms. Includes nutrition, growth, metabolism, placing emphasis on the fermentation and production of energy. The effect of microorganisms in environmental processes is also included. Prerequisite: BIOL 3105.

3 credits

**MICR 4010 MICROBIAL ECOLOGY**

Study of the ecology of microorganisms, microbial biodiversity, the structure and dynamics of populations of clinical and environmental importance. Analysis of the interactions of microorganisms with plants, animals and other microorganisms that surround them. Discussion of the cycles of nutrients with emphasis on the decomposition of organic matter. Requires thirty hours of lecture and forty-five hours of lab. Prerequisite: BIOL 3105.

3 credits

**MICR 4505 MICROBIOLOGICAL APPLICATION TECHNIQUES**

Greater emphasis on laboratory skills for handling microorganisms. Refinement of microbiological procedures of techniques of growth curve; nutrition and growth of bacteria; cultivation of anaerobics; DNA extraction and detection; isolation of mutants; transformation, conjugation and recombination in bacteria and bioremediation in soil. Emphasis on the application of asepsis measures and security in a controlled environment. Requires 90 hours of lab. Prerequisites: BIOL 3105, MICR 3211.

2 credits

**MICR 4910 INTERNSHIP**

Application of microbiological knowledge and skills in a microbiology laboratory. Includes training and oral presentation of work experiences, at the end of the academic term. Students must complete 120 hours of supervised practice. This course must be passed with a minimum grade of C. Prerequisites: MICR 4505, BIOL 4433.

2 credits

## **Courses in Music (MUSI)**

**MUSI 0701, 0702 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.

1 credit per course

**MUSI 0711, 0712 FUNDAMENTALS: INSTRUMENTS I, II**

Review of the fundamentals of instrumental performance, such as 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. Prerequisite: Take a placement test or audition.

1 credit per course

**MUSI 0721, 0722 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: Take a placement test or audition.

1 credit 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 1112 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 15 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 a 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 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**

Actively use 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 1111. Requires 15 hours of lecture and 15 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 2311 DRUMS III**

Application of theoretical-practical knowledge of rudiments, techniques and rhythms of the drum in styles of Latin and North American pop music. Emphasis on the development of acquired skills, knowledge of the advanced repertoire of styles, and rhythmical reading at first sight. Prerequisite: MUSI 1312.

1 credit

## **Courses in Applied Music (MUSI)**

Individual instruction on the principal or secondary instrument of the student majoring either in applied music or in music education. Two (2) credits per semester are required for students in applied music and one (1) credit per semester for students in music education. Two (2) credit classes require one hour weekly; the one (1) credit classes require one half-hour lesson per week. Admission to each series of courses depends on an audition. All the courses ending in digit 2 require a practical test before a jury.

MUSI 1701, 1702, 2701, 2702, 3701, 3702, 4701, 4702	FLUTE
MUSI 1711, 1712, 2711, 2712, 3711, 3712, 4711, 4712	OBOE
MUSI 1721, 1722, 2721, 2722, 3721, 3722, 4721, 4722	CLARINET
MUSI 1731, 1732, 2731, 2732, 3731, 3732, 4731, 4732	BASSOON
MUSI 1741, 1742, 2741, 2742, 3741, 3742, 4741, 4742	SAXOPHONE
MUSI 1751, 1752, 2751, 2752, 3751, 3752, 4751, 4752	TRUMPET
MUSI 1761, 1762, 2761, 2762, 3761, 3762, 4761, 4762	HORN
MUSI 1771, 1772, 2771, 2772, 3771, 3772, 4771, 4772	TROMBONE
MUSI 1781, 1782, 2781, 2782, 3781, 3782, 4781, 4782	EUPHONIUM
MUSI 1791, 1792, 2791, 2792, 3791, 3792, 4791, 4792	TUBA
MUSI 1801, 1802, 2801, 2802, 3801, 3802, 4801, 4802	PERCUSSION
MUSI 1811, 1812, 2811, 2812, 3811, 3812, 4811, 4812	PIANO
MUSI 1821, 1822, 2821, 2822, 3821, 3822, 4821, 4822	ORGAN
MUSI 1841, 1842, 2841, 2842, 3841, 3842, 4841, 4842	VOICE
MUSI 1851, 1852, 2851, 2852, 3851, 3852, 4851, 4852	VIOLIN
MUSI 1861, 1862, 2861, 2862, 3861, 3862, 4861, 4862	VIOLA
MUSI 1871, 1872, 2871, 2872, 3871, 3872, 4871, 4872	CELLO
MUSI 1881, 1882, 2881, 2882, 3881, 3882, 4881, 4882	CONTRABASS
MUSI 1891, 1892, 2891, 2892, 3891, 3892, 4891, 4892	CLASSICAL GUITAR

1 or 2 credits per course

#### **MUSI 1901 ETHNIC PERCUSSION I**

Application of performance techniques in the use of instruments for ethnic and folklore music. Includes the refining, projection of sound, memorization and interpretation of basic rhythms from the cultures of regions of Africa, Arabia, Europe, North America and Latin America. Individualized instruction is provided.

1 credit

#### **MUSI 1902 ETHNIC PERCUSSION II**

Emphasis on the application of performance techniques in the use of the musical instruments, ethnic and folkloric rhythms and the musical styles of each area. Individualized instruction is provided. Prerequisite: MUSI 1901.

1 credit

#### **MUSI 1991 ELECTRIC BASS I**

Individualized introduction to performance on the electric bass. Emphasis on theoretical explanations and practical exercises. Analysis and performance of elementary musical compositions to increase student skills in different rhythms and musical styles.

1 credit

#### **MUSI 1992 ELECTRIC BASS II**

Individualized introduction to performance on the electric bass. Emphasis on theoretical explanations and practical exercises. Analysis and performance of intermediate musical compositions to increase student skills in different rhythms and musical styles. Prerequisite: MUSI 1991.

1 credit

#### **MUSI 1993 ELECTRIC BASS III**

Individualized introduction to performance on the electric bass. Emphasis on theoretical explanations and practical exercises. Analysis and performance of advanced musical compositions to increase student skills in different rhythm and musical styles. Prerequisite: MUSI 1992.

1 credit

#### **MUSI 1994 ELECTRIC BASS IV**

Individualized introduction to performance on the electric bass. Emphasis on theoretical explanations and practical exercises. Analysis and performance of advanced musical compositions to increase student skills in different rhythm and musical styles. Prerequisite: MUSI 1993.

1 credit

**MUSI 2411, 2412 HARMONY AND COUNTERPOINT I, II**

Detailed study of the formation and linkage of chords, their auditory identification, their analysis and use in accompanying melodies. Includes the dictation of these chords, the intonation of their notes and the melodies they form when linked. Detailed study of the techniques for linking simultaneous melodies, using this material for the practice of sight-reading. Prerequisite: MUSI 1400.

3 credits per course

**MUSI 2470 KEYBOARD HARMONY**

Course designed to enable students to read, construct, listen to, reproduce, analyze, perform and transpose melody and the chord progressions at the keyboard and to apply and demonstrate the concepts learned in other music courses. Selected repertoire of musical compositions that help to develop the above-mentioned skills. Prerequisite: MUSI 1462.

2 credits

**MUSI 2901 ETHNIC PERCUSSION III**

Refinement of performance techniques in the use of musical instruments ethnic and folkloric, rhythms and the musical styles of each area. Individualized instruction is provided. Prerequisite MUSI 1902.

1 credit

**MUSI 3070 JAZZ IN GUITAR**

Acquaintance with modern codes used in jazz, after a study of modern musical nomenclature.

1 credit

**MUSI 3130 POPULAR MUSIC WORKSHOP**

Study, analysis, arrangement, orchestration and performance of different genres of Puerto Rican and international popular music. Direct experience interpreting diverse genres of popular music.

1 credit

**MUSI 3301, 3302 VOCAL TECHNIQUES I, II**

The fundamentals of vocal techniques and methodology in vocal-choral instruction. Includes study of the International Phonetic Alphabet and its applications to diction. Study of the basic pronunciation rules in the following languages: Spanish, Italian, French, German and English.

2 credits per course

**MUSI 3311, 3312 WESTERN MUSIC: HISTORY AND LITERATURE I, II**

Survey of the development of music from its primitive beginnings to the present. The first course includes the history and literature of music up to 1750. The second course covers the period from 1750 to the present.

3 credits per course

**MUSI 3320 HISTORY OF PUERTO RICAN AND LATIN AMERICAN MUSIC**

Overview of the origins and development of Puerto Rican music. Interaction of Puerto Rican and Latin American music.

2 credits

**MUSI 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 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 Networks and Telecommunications (NTEL)****NTEL 1200 INTRODUCTION TO NETWORKS AND TELECOMMUNICATIONS**

Basic concepts of the configuration of local and regional telecommunications networks will be studied. Aspects such as the standards, ISO-OSI model, protocols, Ethernet technology, the Internet and basic communications equipment will be discussed. Emphasis on application programs, servers, administrators and security controllers, among others. Requires 45 hours of lecture-lab and additional time in an open laboratory. Prerequisite: CMIS 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 FOUNDATIONS 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 psychophysiological 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 IN NURSING**

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 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 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 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 SKILLS I\***

Development of skills using the computer keyboard. Introduction to the basic functions of the operative system and of the word processing program in use. Development of basic skills for speed and accuracy and their application to the creation of documents, such as letters, memos, and simple reports. Importance given to the basic techniques of proofreading.

4 credits

### **OMSY 1102 INFORMATION PROCESSING SKILLS II\***

Development of basic skills for speed and accuracy and their application when processing business correspondence in the computer. Development of skills in the production of business documents, such as letters with special lines, manuscripts, tables, agendas, itineraries, envelopes, templates, and statistical forms of frequent use in the office. Prerequisite: OMSY 1101.

4 credits

### **OMSY 2000 PRODUCTION OF BUSINESS DOCUMENTS\***

Application of advanced functions in word processing to the production of complex documents, such as reports with footnotes and endnotes, forms, proposals, documents produced in journalistic and parallel columns, table of contents, indexes, minutes, and labels, among others. Emphasis on the quality of documents, development of basic skills at optimum levels and proofreading. Prerequisite: OMSY 1102.

4 credits

### **OMSY 2010 TRANSCRIPTION IN SPANISH\***

Transcription and edition of commercial document created by means of dictations, manuscripts, e-mails, recordings, document integration and others. Emphasis on the quality and accuracy of the transcription in Spanish when applying the use of proper language. Prerequisites: OMSY 1101, 1010.

3 credits

**OMSY 2040 SPREADSHEETS IN OFFICE APPLICATIONS\***

Application of skills in the management of electronic spreadsheets. Using the program's tools for producing different documents and financial and statistical reports that are part of the duties of the office systems administrator. Evaluation of information for decision-making. Emphasis on the effective application of the electronic spreadsheet within the context of office systems. Prerequisite: OMSY 1000 or 1101.

3 credits

**OMSY 2060 MANAGEMENT OF DOCUMENTS AND DATABASES\***

Discussion of the different systems of receiving, classifying, processing, control, filing, and disposition of documents. Emphasis on the theory and concepts related with manual, mechanical and automated systems of handling and locating documents in their administration. Application of skills in the use of a database program under the environment of Windows. Prerequisite: OMSY 1101.

4 credits

**OMSY 2230 INFORMATION PROCESSING IN OFFICES OF LEGAL AFFAIRS\***

Discussion of terminology of a legal nature and of ethical aspects related to the processing of information in legal affairs offices. Analysis of procedures for preparing and processing documents used in courts and administrative agencies, Property Registry, Demographic Register and the Treasury Department, among others. Includes the creation of formats and the preparation of documents of a legal nature. Prerequisite: OMSY 2000.

3 credits

**OMSY 2240 INFORMATION PROCESSING IN OFFICES OF MEDICAL SERVICE \***

Discussion of terminology of a legal nature and ethical aspects related to the processing of information in medical service offices. Analysis of the impact of state and federal laws that regulate health services in Puerto Rico. Practice of procedures to prepare and process documents that are used in health service offices. Prerequisite: OMSY 1102.

3 credits

**OMSY 3000 MEDICAL SERVICES BILLING\***

Study of the fundamental concepts of medical service billing. Basic applications for the processing of billing these services using a computer program. Prerequisite: OMSY 2240.

3 credits

**OMSY 3020 HUMAN RESOURCES IN THE ORGANIZATIONAL ENVIRONMENT**

The importance of the human resource in an organizational environment. Emphasis on the adequate aspects of personality for working effectively in an office environment. Analysis of teamwork techniques, interpersonal relations, office ethics, communication channels, motivation, employment satisfaction, performance, professional development, and organizational culture.

3 credits

**OMSY 3030 BUSINESS COMMUNICATION WORKSHOP IN SPANISH**

Development of oral and written communication skills in Spanish. Writing and revision of business documents. Analysis of the basic elements of business communication. A computer will be used for writing and revising business documents. Prerequisites: GESP 1102 or its equivalent, and GEIC 1010.

3 credits

**OMSY 3040 BUSINESS COMMUNICATION WORKSHOP IN ENGLISH**

Development of oral and written communication skills in English. Emphasis on writing and revising business documents. Application of the language rules and simple oral practices. A computer will be used for the direct writing and revision of business documents. Prerequisites: GEEN 1102 or its equivalent and GEIC 1010.

3 credits

**OMSY 3050 GRAPHIC ART DESIGN FOR OFFICES\***

Art design using tools available for the computerized preparation of office publications, such as: letterheads, bulletins, announcements, invitations, agendas, programs, brochures, and reviews, among others. Emphasis on creativity and effective use of the resources. Prerequisite: OMSY 2000.

3 credits

**OMSY 3060 COMPUTER TRANSCRIPTION\***

Practice in the direct production of documents and letters in the word processor. Utilization of dictating equipment and other means of transcribing documents in Spanish and English. Development of grammatical skills. Analysis of diverse systems for management and control of disks and documents. Preparation of different formats of documents. Work will be done with a minimum of instructions. Requires 60 hours of instruction. Prerequisites: OMSY 2000, 3030, 3040.

4 credits

**OMSY 3070 SKILLS AND STRATEGIES FOR THE LABOR MARKET**

Analysis of strategies for the identification of employment opportunities. Professional application of the concepts and skills to face the challenges of the organizational environment in constant evolution. Emphasis on the discussion of effective means to perform successfully through the different stages of the professional career.

3 credits

**OMSY 3080 OFFICE SYSTEMS ADMINISTRATION**

Evaluation of the impact of technology and global market on business. Discussion of administrative procedures and their application to office systems. Analysis of duties and responsibilities of the office personnel and the impact on productivity. Emphasis on concepts, such as effective administration of resources, self-business, mail management, decision-making, and quality management applied to processes. Prerequisite: OMSY 1102.

3 credits

**OMSY 3500 INTERACTIVE BUSINESS COMMUNICATION IN ENGLISH**

Development of oral communication skills and the effective use of business vocabulary. Oral practice in simulations of office situations with the goal of improving pronunciation in the English language and reducing barriers in communication. Technological resources to develop and reinforce oral communication skills. Requires 45 hours of instruction. Prerequisites: GEEN 1103 or its equivalent and OMSY 3040.

3 credits

**OMSY 4010 INTEGRATION OF APPLICATION PROGRAMS IN OFFICE ADMINISTRATION\***

Integration of the functions of word processing, graphic, art design, electronic spreadsheets, databases and calendars in the preparation of different documents in the office. Prerequisites: OMSY 2000, 2040, 2060, 3050.

3 credits

**OMSY 4500 TELECOMMUNICATIONS IN THE OFFICE\***

Study of the theoretical and practical basis of telecommunications and their application in business. Development of the necessary basic skills for using tools of e-mail, Internet, electronic calendars, and videoconferencing, among others. Study of the ethical and safety principles when using these tools. Creation of an Internet web page. Prerequisite: OMSY 2000.

3 credits

**OMSY 4910 PROFESSIONAL PRACTICUM**

Direct on the job training by carrying out the administrative support duties in selected offices in the external community or in the University. Requires 10 hours of lecture and 180 hours of practice. Prerequisites: Have passed all OMSY courses at the 1000, 2000 and 3000 levels and the course 4010. Corequisite: OMSY 4970.

3 credits

**OMSY 4970 INTEGRATING SEMINAR**

Integration of the knowledge, skills and required attitudes of all members of a work team in an office system. Emphasis on the transition from student to employee. Critical analysis, evaluation and recommendations in facing situations that occur in the work environment. Includes the concepts of the virtual office, labor legislation,

globalization and the skills for the preparation of trainings. Prerequisites: OMSY 3080, 4010. Corequisite: OMSY 4910.

3 credits

\* Courses OMSY with an asterisk require a special fee.

## **Courses in Optical Science Technology (OPST)**

### **OPST 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 (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 PROFESSIONAL COMMUNICATION SKILLS IN PHYSICAL THERAPY**

Development of skills in data collection, evaluation and documentation of verbal and written reports. Principles of communication between the patient and the physical therapy assistant, the assistant and the physical therapist, as well as with other members of the health team. Prerequisites: PHTH 1000, 1010.

2 credits

**PHTH 2053 CARDIOPULMONARY PHYSICAL THERAPY**

Discussion of the pathophysiological process of diseases and dysfunctions of the cardiovascular and respiratory system commonly found in the practice of physical therapy. Emphasis on etiology, clinical manifestations and pattern of incapacity in cardiopulmonary conditions. Requires 30 hours of lecture and 45 hours of closed lab. Prerequisites: PHTH 1212, 1222, 1223.

3 credits

**PHTH 2054 KINESIOLOGY AND FUNCTIONAL ANATOMY**

Advanced study of the structure and function of the skeletal, muscular and nervous systems as well as their applications. Includes goniometry, tests of muscular force, analysis of ambulation and posture. Requires 30 hours of lecture and 45 hours of closed lab.

3 credits

**PHTH 2055 GROWTH AND HUMAN DEVELOPMENT**

Review of the basic knowledge of the theories of growth and development, as well as of the changes that occur throughout the life cycle. Study of physical, mental, emotional and sociocultural aspects typical of development. Emphasis on concepts of control and motor learning. Includes basic concepts of development and aging of the corporal systems.

2 credits

**PHTH 2151 ORTHOPEDIC REHABILITATION**

Discussion of basic fundamentals for the rehabilitation of orthopedic conditions. Emphasis on interventions related to measurement and tests of the muscular and skeletal system, such as scope of movements, goniometry and muscular tests. Includes interventions, such as training, therapeutic and postural exercises, among others. Requires 30 hours lecture and 45 hours of closed lab. Prerequisites: PHTH 2053, 2054, 2055.

3 credits

**PHTH 2350 NEUROLOGICAL REHABILITATION**

Discussion of the rehabilitation of neurological conditions. Emphasis on interventions related to the measurement and tests of the central and peripheral nervous system. Includes interventions such as, training in daily life activities, functional training and in ambulation, use of prostheses and orthoses and handling pediatric and geriatric patients with neurological conditions. Requires 30 hours of lecture and 90 hours of closed lab. Prerequisites: PHTH 2053, 2054 and 2055.

4 credits

**PHTH 2921 INTERNSHIP IN PHYSICAL THERAPY I**

Supervised clinical experiences aimed to integrate the technical skills and knowledge of a physical therapist assistant. It applies the basic knowledge of patient care, care of wounds, therapeutic modalities, respiratory exercises, pulmonary hygiene techniques, aerobic capacity and resistance, as established in the patient's care plan designed by the physical therapist. Practice in an agency of physical therapy services, under the supervision of a clinical instructor. Requires one hundred twenty (120) hours of practice. Prerequisites: PHTH 2053, 2054, 2055.

2 credits

**PHTH 2922 INTERNSHIP IN PHYSICAL THERAPY II**

Supervised clinical experiences aimed to integrate the technical skills to perform the roles expected of a physical therapist assistant. Emphasis on functional training, technical therapeutic exercises for neurological and orthopedic rehabilitation, as identified in the patient's care plan established by the physical therapist. Full-time practice in an agency of physical therapy services, under the supervision of a clinical instructor. Requires one hundred eighty (180) hours of practice. Prerequisites: PHTH 2921, 2151, 2350.

3 credits

**PHTH 2923 INTERNSHIP IN PHYSICAL THERAPY III**

Full-time supervised clinical experience aimed to integrate the technical skills and knowledge required of a physical therapist assistant. Practice under the supervision of the clinical instructor, in an agency of physical therapy services. Requires two hundred forty (240) hours. Prerequisite: PHTH 2922.

4 credits

**PHTH 2990 INTEGRATION SEMINAR IN PHYSICAL THERAPY**

Discussion of current situations and trends in the health care services that have an impact on physical therapy and the role of the physical therapy assistant. Integration of ethical-legal principles and the results of research in the profession in the discussion of matters related to the practice of the physical therapy assistant. Prerequisites: PHTH 2151, 2350, 2921.

2 credits

## Courses in Physics (PHYS)

The courses offered in physics are designed to help students in the areas of science, engineering and other disciplines understand the physical principles that have been the basis for the great technological achievements of our era. A major in physics is not offered.

**PHYS 1013 GENERAL PHYSICS AND ITS APPLICATIONS**

Fundamentals of the various divisions of physics. Designed for students not majoring in a science. Emphasis is placed on the application of physics to other sciences. Requires 45 hours of lecture and 45 hours of lab.

4 credits

**PHYS 3001 GENERAL PHYSICS I**

Logical and unified presentation of physics at the introductory level, emphasizing the basic ideas constituting its foundations: laws of motion and the conservation and interaction between particles and fields. Students are exposed to different experiences in the fields of mechanics and heat in the teaching-learning process. Emphasis on the integration and application of concepts throughout the experimentation. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: MATH 1500.

4 credits

**PHYS 3002 GENERAL PHYSICS II**

Continuation of the study of conservation laws, the interaction between particles and fields and the atomic description of matter. Students are exposed to different experiences in the areas of electromagnetism, waves and modern physics. Emphasis on the integration and application of concepts throughout the experimentation. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: PHYS 3001.

4 credits

**PHYS 3311 PHYSICS FOR ENGINEERS I**

Linear and planar motion. Newton's laws. Work and energy; impulse, momentum. Rotational motion, simple harmonic motion; equilibrium of rigid particles and bodies. Requires 45 hours of lecture and 45 hours of lab. Prerequisite: MATH 2251.

4 credits

**PHYS 3312 PHYSICS FOR ENGINEERS II**

Coulomb's law, electric forces, electric field and its potential; capacitance and dielectric materials. Ohm's law, Kirchhoff's laws, magnetic fields, electromagnetic induction, alternate current circuits and electromagnetic waves. Requires 45 hours of lecture and 45 hours of lab. Prerequisites: PHYS 3311, MATH 2252.

4 credits

**Courses in Political Science (POLS)****POLS 1011 INTRODUCTION TO POLITICAL SCIENCE**

Introduction to basic concepts, institutions and processes of political science.

3 credits

**POLS 2040 GOVERNMENT OF THE UNITED STATES**

Influence of people, processes and the political culture on the structure and functions of the federal government; the dynamic forces of growth, technological development, wars and recessions and how these have altered the development of a pluralistic society.

3 credits

**POLS 2088 THE GOVERNMENT OF THE COMMONWEALTH OF PUERTO RICO**

Governmental institutions and political processes in the Commonwealth of Puerto Rico; emphasis on the power structure, role of political parties, interpersonal relationships, the status question and recent trends and events.

3 credits

**POLS 2100 POLITICAL ANALYSIS AND RESEARCH TECHNIQUES**

Introduction to research design, investigation methods, strategies and tools to be used in field investigations in Political Science and to the formulation of theories. Emphasis on the application of the scientific method in the analysis of political data, the formulation of research problems and hypotheses and the basic techniques of statistical analysis for Social Sciences.

3 credits

**POLS 3050 ETHICS, RELIGION AND POLICY**

Analysis of the impact of religion and ethics on the political development of society and the changes over time in the relations between religious practice and government.

3 credits

**POLS 3080 POLITICAL ECONOMICS**

Review of the main theories of political economy, its structures and the relationship between the political and economic systems in industrialized countries as well as in developing countries. Current topics are discussed.

3 credits

**POLS 3100 COMPARATIVE GOVERNMENT AND POLITICS**

Different political systems found in the world today; emphasis on recurrent patterns and elements of the political process.

3 credits

**POLS 3150 INTRODUCTION TO INTERNATIONAL RELATIONS**

Basic study of international interactions in the 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 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 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 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 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 Polysomnography (Post Associate Degree)**

#### **POLY 3000 INTRODUCTION TO POLYSOMNOGRAPHY**

Study of polysomnography. Emphasis on the study of the basic science of sleep: neurophysiology, monitoring, electrical security, diagnosis and methods of treatment. Among these, are: CPAP (Continuous Positive Airway Pressure), BiPAP (Bi level Positive Airway Pressure), oxygen therapy and surgical interventions, among others. Includes job responsibilities, the normal and abnormal patterns of sleep, and integrates physiological functions of the respiratory, nervous, and cardiovascular systems and common sleep disorders.

3 credits

#### **POLY 3001 FOUNDATIONS OF POLYSOMNOGRAPHY I**

Survey of the documentation of sleep disorders, patient interviews and use of questionnaires. Study of the preparation and care of the patient during the application of electrodes for recording information at night, report of patient's sleep and assessment. Emphasis on the calibration and preparation of instruments, registry of parameters and introduction to the auxiliary equipment commonly used. Includes the use of CPAP for the treatment of sleep apnea. Prerequisite: POLY 3000. Corequisite: POLY 3101.

3 credits

#### **POLY 3002 FOUNDATIONS OF POLYSOMNOGRAPHY II**

Differentiation of the diverse stages of sleep. Emphasis on the study of compilation methods of respiratory events, criteria of movement during sleep and when waking up. Includes the recognition of normal and abnormal sleep patterns, the effects of medicines on sleep patterns, respiratory patterns, patterns of movement when waking up, together with the criterion to recognize abnormalities in ECG and EEG. Introduction to the major categories of sleep disorders in infant and pediatric patients. It provides a detailed vision of the specific aspects of Polysomnography and of the special needs required for this population. Prerequisite: POLY 3001. Corequisite: POLY 3102.

3 credits

**POLY 3101 CLINICAL POLYSOMNOGRAPHY I**

Directed practice in a clinical scenario in a sleep laboratory or center. Emphasis on the valuation of the periodic cessation of respiratory activity based on positioning and monitoring of the following: electroencephalography, electroculography, electrocardiography, electromyography, pulse oximetry, inductive plethysmography (changes in volume) and thermoregulation of the air flow. Recognition of anomalies in the EEG and ECG diagrams and how to react and to relate them to different sleep disorders. Prerequisite: POLY 3000. Corequisite: POLY 3001.

2 credits

**POLY 3102 CLINICAL POLYSOMNOGRAPHY II**

Directed practice in a clinical scenario in a sleep laboratory or center. Students assist in the preparation and discontinuation of monitoring in sleep studies of pediatric and adult patients. Emphasis on the documentation of the findings in sleep patterns related to the cessation of breathing. Use of CPAP and BIPAP equipment for the treatment of apnea, and the use of oxygen when indicated. Prerequisites: POLY 3001, 3101. Corequisite: POLY 3002.

2 credits

**Courses in Popular Music (MUSI)****MUSI 0501 PREPARATORY FLUTE I**

Study and development of basic skills for performance on the instrument: the correct manner to hold the flute, correct posture for playing the instrument, diaphragmatic breathing, sound production and elementary music reading. Prerequisite: placement by the entrance examination or by validation.

3 credits

**MUSI 0502 PREPARATORY FLUTE II**

Mastery of the basic skills for performing on the instrument in preparation for entrance to the first year of studies with the principal instrument. Prerequisite: MUSI 0501 or placement in accordance with the entrance examination or by validation.

3 credits

**MUSI 0511 PREPARATORY PIANO I**

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 18<sup>th</sup> 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 19<sup>th</sup> century until the present. Reading and writing, the analysis and musical audition of the musicians, the genres, the instruments and the social context of types of music that make up the musical tradition of the society, in general. Study of the invention of categories of classification, such as popular and classic, as well as the historical tradition in the context of the colonial relations between the Americas and Europe.

3 credits

#### **MUSI 1124 COMPARATIVE HISTORY OF MUSIC III**

Discussion of the history of the music of Puerto Rico from the pre-Columbian time to the 21st century. Reading and writing, analysis and musical audition of the musicians, the genre, the instruments and the social context of the types of music that make up the musical tradition in the Puerto Rican society, in general. The genesis and the development of debates on music and identity, music and authenticity and the historiography of music on the Island will be studied.

3 credits

**MUSI 1126 CHRISTIAN MUSIC HISTORY**

Analysis of the historical, musical and theological aspects and the origin and development of Christian music as well as the practice and its trajectory within the liturgical framework. Prerequisite: MUSI 0532.

2 credits

**MUSI 1323 INSTRUMENTAL ENSEMBLE I**

Practices in supervise rehearsals under the guidance of the group director, for a concert repertoire selected according to the levels and to nature of the group. Presentation of the repertoire in a public concert at the end of the academic term.

2 credits

**MUSI 1324 INSTRUMENTAL ENSEMBLE II**

Practices in supervise rehearsals under the guidance of the group director, for a concert repertoire selected according to the levels and to nature of the group. Presentation of the repertoire in a public concert at the end of the academic term. Prerequisite: MUSI 1323 or its equivalent.

2 credits

**MUSI 1333 CHORAL ENSEMBLE I**

Practices in supervise rehearsals under the guidance of the group director, for a recital (choral) repertoire selected according to the levels and to nature of the group. Presentation of the recital repertoire in a public concert at the end of the academic term. The evaluation takes into account attendance and the preparation for the rehearsals, as well as the participation in the concerts.

2 credits

**MUSI 1334 CHORAL ENSEMBLE II**

Practices in supervise rehearsals under the guidance of the group director, for a recital (choral) repertoire selected according to the levels and to nature of the group. Presentation of the recital repertoire in a public concert at the end of the academic term. The evaluation takes into account attendance and the preparation for the rehearsals, as well as the participation in the concerts. Prerequisite: MUSI 1333 or its equivalent.

2 credits

**MUSI 1501 FLUTE I**

Course to prepare students to develop effectively in the popular music field. Study of techniques, sound projection, memorization and interpretation of musical pieces of medium difficulty, memorization and development of reading at first sight. Prerequisite: have passed a practice entrance examination or preparatory courses in the flute.

3 credits

**MUSI 1502 FLUTE II**

Continuation of the previous course with a more in-depth study of the techniques, sound production and repertoire of the instrument. Introduction to vibrato and double tonguing, memorization and interpretation of musical pieces of advanced difficulty and to reading at first sight. Prerequisite: MUSI 1501.

3 credits

**MUSI 1511 PIANO I**

Course to prepare students to develop effectively in the popular music field. Study of piano techniques, memorization and interpretation of musical pieces of medium difficulty and of reading at first sight. Prerequisite: MUSI 0512 or have passed an entrance examination at this level (by audition before a jury of professors) or by validation.

3 credits

**MUSI 1512 PIANO II**

Continuation of the previous course with a more in-depth study of the techniques, the repertoire of the instrument and of the development of reading at first sight. Prerequisite: MUSI 1511.

3 credits

**MUSI 1521 PUERTO RICAN CUATRO I**

More advanced study of techniques for the instrument, mastery of the plectrum non-adjacent strings and in the repertoire of the instrument. Prerequisite: MUSI 0522 have passed an entrance examination at this level or by validation.

3 credits

**MUSI 1522 PUERTO RICAN CUATRO II**

More advanced study of techniques for the instrument and an extension of its repertoire. Prerequisite: MUSI 1521 or have passed an entrance examination at this level or by validation.

3 credits

**MUSI 1531 THEORY AND SIGHT SINGING I**

Detailed study of music theory and sight singing applied to popular music. Emphasis on auditory training of medium difficulty (up to two voices), and music reading at first sight including an introduction to the transport technique. Prerequisite: have passed a written and practical entrance placement examination or preparatory courses in the field of Music Theory and Sight Singing.

3 credits

**MUSI 1532 THEORY AND SIGHT SINGING II**

Detailed study of music theory and sight singing applied to popular music. Emphasis on auditory training (up to four voices), and music reading at first sight including the perfecting of the transport technique. Prerequisite: MUSI 1531 or equivalent.

3 credits

**MUSI 1541 SAXOPHONE I**

Course to prepare students for effective development in their principal instrument in the popular music field. Study of techniques for the instrument, sound projection, memorization and interpretation of pieces of medium difficulty and the development of reading at first sight. Prerequisites: MUSI 0542 or have passed the entrance examination for this level by audition or by validation.

3 credits

**MUSI 1542 SAXOPHONE II**

Continuation of the preparation for students' effective development in the popular music field. A broader and more in-depth study of techniques for the instrument and sound production and projection. Introduction to vibrato, memorization and interpretation of musical pieces of medium and advanced difficulty and to reading at first sight. Prerequisites: MUSI 1541 or have passed the entrance examination for this level by audition or by validation.

3 credits

**MUSI 1551 TRUMPET I**

Course to prepare for an effective development in the instrument in the popular music field. Study of techniques for the instrument, sound projection, memorization and interpretation of pieces of medium difficulty and the development of reading at first sight. Prerequisite: MUSI 0552 or have passed the entrance examination by audition or by validation.

3 credits

**MUSI 1552 TRUMPET II**

Continuation of the preparation for students' effective development with their principal instrument in the popular music field. A broader study of techniques for the instrument, sound production and projection, introduction to vibrato, extension of the register, memorization and interpretation of musical pieces of medium and advanced difficulty and reading at first sight. Prerequisite: MUSI 1551.

3 credits

**MUSI 1563 GROUP PIANO I**

Introduction to the keyboard as a work instrument. Basic scales and arpeggios. Some knowledge of keyboard harmony.

2 credits

**MUSI 1564 GROUP PIANO II**

Continuation of the introduction to the keyboard. Advanced study of the scales, the arpeggios and the chords. Prerequisite: MUSI 1563.

2 credits

**MUSI 1571 TROMBONE I**

Course designed for achieving the effective development of students in their principal instrument in the popular music field. Study of techniques for the instrument, sound projection, memorization and interpretation of pieces of the medium difficulty and the development of reading at first sight. Prerequisite: MUSI 0572 or have passed the entrance examination for this level by audition or by validation.

3 credits

**MUSI 1572 TROMBONE II**

Continuation of preparation for the effective development of students in their principal instrument in the popular music field. A broader study of techniques for the instrument, sound production and projection, introduction to vibrato, extension of the register, memorization and interpretation of musical pieces of medium and advanced difficulty and reading at first sight. Prerequisites: MUSI 1571.

3 credits

**MUSI 1581 BASS I**

A more profound study of techniques for the instrument, musical calligraphy and the diapason. Prerequisite: MUSI 0582 or have passed an entrance examination for this level or by validation.

3 credits

**MUSI 1582 BASS II**

Study of more advanced styles of popular music such as salsa, funk, jazz, samba and fusion and the role of bass in these styles. Perfecting the techniques for the instrument. Prerequisite: MUSI 1581 or have passed an entrance examination at this level or by validation.

3 credits

**MUSI 1591 GUITAR I**

Study of techniques for the instrument, of diapason and the use of the pick; introduction to reading at first sight and to the technique of reading charts of popular music for the principal instrument. Prerequisite: MUSI 0592 or have passed an entrance examination at this level or by validation.

3 credits

**MUSI 1592 GUITAR II**

A more profound study of techniques for the instrument, reading at first sight and the extension of the musical repertoire. Prerequisite: MUSI 1591 or have passed an entrance examination at this level or by validation.

3 credits

**MUSI 1601 DRUMS I**

This course is divided into three phases: reading at first sight, techniques for the instrument and study of simple styles of popular music. Workshops will be formed for group practice. Prerequisite: MUSI 0602 or have passed an entrance examination or by validation.

3 credits

**MUSI 1602 DRUMS II**

Study of the most advanced techniques for the instruments and styles such as salsa, merengue, funk, jazz and samba. Emphasis on reading more advanced rhythms. Workshops will be created for group practice. Prerequisite: MUSI 1601 or have passed an entrance examination or by validation.

3 credits

**MUSI 1611 PREPARATORY PERCUSSION I**

This course is divided into three phases: reading at first sight, techniques for the instrument and study of simple styles of popular music. Workshops will be formed for group practice. Prerequisite: MUSI 0612 or have passed an entrance examination or by validation.

3 credits

**MUSI 1612 PREPARATORY PERCUSSION II**

A more advanced study of techniques for the instrument and styles such as salsa, merengue, funk, jazz and samba. Emphasis on reading more advanced rhythms. Workshops will be created for group practice. Prerequisite: MUSI 1611 or have passed an entrance examination or by validation.

3 credits

**MUSI 1631 VIOLIN I**

Introduction to basic skills of the techniques of the instrument. Study of the interpretation and musical reading for its performance in pop music and jazz. Prerequisite: MUSI 0632 or placement by audition.

3 credits

**MUSI 1632 VIOLIN II**

Continuation in the use of the techniques of the instrument. Study of the interpretation and musical reading for its execution in pop music and jazz. Prerequisite: MUSI 1631 or placement by audition.

3 credits

**MUSI 1641 VOICE I**

Detailed study of posture, breath control, sound projection, diction and repertoire. Prerequisite MUSI 0642 or have passed an entrance examination or by validation.

3 credits

**MUSI 1642 VOICE II**

Continuation of a more in-depth development of knowledge already acquired regarding posture, breath control, sound projection, diction by means of an extensive literature. Prerequisite MUSI 1641 or have passed an entrance examination or by validation.

3 credits

**MUSI 1651 VIOLA I**

Introduction to the basic technique skills of the instrument. Study of interpretation and musical reading for its performance in pop music and jazz. Prerequisite: MUSI 0652 or placement by audition.

3 credits

**MUSI 1652 VIOLA II**

Continuation in the use of the techniques of the instrument. Study of interpretation and musical reading for its performance in pop music and jazz. Prerequisite: MUSI 1651 or placement by audition.

3 credits

**MUSI 1661 GROUP GUITAR I**

Introduction to the study of the guitar technique. Study of the basic skills in the performance applied to the instrument, correct technique of both hands, production of a purified sound, study of majors and minor scales, interpretation of studies to develop the technique and study of simple pieces.

2 credits

**MUSI 1662 GROUP GUITAR II**

Designed for students who continue learning the technique of the guitar. Study of the basic skills in the performance applied to the instrument, correct technique of both hands, production of a purified sound, study of majors and minor scales, interpretation of studies to develop the technique and study of simple pieces. Prerequisite: MUSI 1661.

2 credits

**MUSI 1671 CELLO I**

Introduction to the basic technique skills of the instrument. Study of interpretation and musical reading for its performance in pop music and jazz. Prerequisite: MUSI 0672 or placement by audition.

3 credits

**MUSI 1672 CELLO II**

Continuation in the use of the techniques of the instrument. Study of interpretation and musical reading for its performance in pop music and jazz. Prerequisite: MUSI 1671 or placement by audition.

3 credits

**MUSI 2000 DIGITAL MUSICAL NOTATION**

Systematic study of one of the most powerful and popular computer notation programs. For example *Finale* or *Sibelius*.

3 credits

**MUSI 2020 LITURGICAL FUNCTION OF MUSIC**

Comprehensive survey of sacred music. Analysis of musical development in the church and the most representative traditions, as well as their biblical, theological and historical bases. Appraisal of the influences of commercial religious music and its sociological elements and the practical aspects of the use of music in liturgy. Prerequisite: MUSI 0532.

2 credits

**MUSI 2030 CHORAL DIRECTING AND MANAGEMENT**

Study of choral directing techniques, rehearsal methodology, selection of the repertoire and the organization of a choir or choral programs. Prerequisite: MUSI 0532.

3 credits

**MUSI 2040 INSTRUMENTAL DIRECTING AND MANAGEMENT**

Study of directing techniques and rehearsal methodology for different instrumental configurations, such as: orchestra, band, minstrel, bells choir or ensemble. Recognition of their register and positions in the different instruments. Prerequisite: MUSI 0532.

3 credits

**MUSI 2050 SACRED MUSIC ENSEMBLE**

Interpretation of a repertoire of sacred music that includes traditional and contemporary expressions. Prerequisite: MUSI 0532.

2 credits

**MUSI 2060 ANTHROPOLOGY AND HISTORY OF MUSIC**

Introduction to the study of the genesis and development of historical and anthropological studies of music. Comprehensive and comparative review of the investigative and interpretative traditions in anthropology and musical history in Europe and the Americas from the nineteenth century to the present. Prerequisite: MUSI 1123.

3 credits

**MUSI 2070 MUSICAL RESEARCH THEORIES AND METHODS**

Identification of methods and theories of research in anthropology and musical history. Basic skills development in academic research: familiarization with library operation and library databanks, as well as application programs of bibliographical and documentary organization. Working with quotation styles, the creation of bibliographies and academic writing formats used in the fields of anthropology and musical history. Prerequisite: MUSI 2060.

3 credits

**MUSI 2080 PARADIGMS IN ANTHROPOLOGY AND MUSIC HISTORY**

Reading of exemplary works in the anthropology and music history disciplines. Comparative analysis of the researchers in Europe and the Americas and of their writings, from the nineteenth century to the present. Prerequisite: MUSI 2060.

3 credits

**MUSI 2326 INSTRUMENTAL ENSEMBLE III**

Directed practices under the guidance of the group director, a concert repertoire selected according to the levels and the nature of the groups. Presentation of the repertoire in a public concert at the end of the academic term. Prerequisite: MUSI 1334 or its equivalent.

2 credits

**MUSI 2327 INSTRUMENTAL ENSEMBLE IV**

Directed practices, under the guidance of the group director, a concert repertoire selected according to the levels and the nature of the groups. Presentation of the repertoire in a public concert at the end of the academic term. Prerequisite: MUSI 2326 or its equivalent.

2 credits

**MUSI 2335 CHORAL ENSEMBLE III**

Directed practices, under the trusteeship of the group director, a concert repertoire selected according to the levels and the nature of the groups. Presentation of the repertoire in a public concert at the end of the academic term. Prerequisite: MUSI 1333 or its equivalent.

2 credits

**MUSI 2336 CHORAL ENSEMBLE IV**

Directed practices, under the guidance of the group director, a concert repertoire selected according to the levels and the nature of the groups. Presentation of the repertoire in a public concert at the end of the academic term. Prerequisite: MUSI 2335 or its equivalent.

2 credits

**MUSI 2503 FLUTE III**

Course designed to prepare students to master techniques of their principal instrument and reading at first sight together with an introduction to improvisation, Advanced study of instrument techniques, perfecting reading at first sight, interpretation of an advanced repertoire and improvisation techniques. Prerequisite: MUSI 1502.

3 credits

**MUSI 2504 FLUTE IV**

Advanced study of instrument techniques with emphasis on improvisation and the repertoire. Prerequisite: MUSI 2503.

3 credits

**MUSI 2513 PIANO III**

Continuation of the previous course where the techniques, interpretation and repertoire of the principal instrument are developed to a higher level of difficulty. Prerequisite: MUSI 1512.

3 credits

**MUSI 2514 PIANO IV**

Advanced study of techniques and interpretation of the student's principal instrument. Prerequisite: MUSI 2513.

3 credits

**MUSI 2523 PUERTO RICAN CUATRO III**

Intermediate and advanced level study of techniques for the instrument with emphasis on improvisation and the repertoire. Prerequisite: MUSI 1522.

3 credits

**MUSI 2524 PUERTO RICAN CUATRO IV**

Advanced study of techniques for the instrument with emphasis on advanced improvisation and extension of the repertoire. Prerequisite: MUSI 2523.

3 credits

**MUSI 2531 IMPROVISATION I**

Introductory study to the art of musical improvisation with emphasis on the styles of Jazz and Afro-Caribbean music. The basic techniques of improvisation on simple pitch or modal progressions will be emphasized. Analysis and transcription of solos.

3 credits

**MUSI 2532 IMPROVISATION II**

Continuation of the study begun in the course Improvisation I. Emphasis on the review and internalization of the concepts presented in the previous course and the presentation of new techniques and resources that expand the previous ones. Prerequisite: MUSI 2531.

3 credits

**MUSI 2533 IMPROVISATION III**

Study of the advanced techniques of improvisation accessible to all harmonic and melodic instruments. This extends up to atonal improvisation (free), arbitrary and other sources of this art derived from classic or popular contemporary music. Prerequisite: MUSI 2532.

3 credits

**MUSI 2543 SAXOPHONE III**

Course designed to prepare students for mastery of techniques for the instrument and of reading at first sight together with an introduction to improvisation. Advanced study of the technique for the instrument, the perfecting of reading at first sight, interpretation of an advanced repertoire and of techniques for improvisation. Prerequisite: MUSI 1542.

3 credits

**MUSI 2544 SAXOPHONE IV**

Advanced study of the technique of the instrument with emphasis on improvisation and the repertoire. Prerequisite: MUSI 2543

3 credits

**MUSI 2553 TRUMPET III**

Course designed to prepare students to master techniques of the instrument and reading at first sight together with an introduction to improvisation, Advanced study of instrument techniques, perfecting reading at first sight, interpretation of an advanced repertoire and improvisation techniques. Prerequisite: MUSI 1552.

3 credits

**MUSI 2554 TRUMPET IV**

Advanced study of techniques for the instrument, sound production, reading at first sight, expansion of the register and the repertoire and improvisation. Prerequisite: MUSI 2553.

3 credits

**MUSI 2573 TROMBONE III**

Course designed to prepare students to master techniques for the instrument and reading at first sight, interpretation of advanced repertoire and improvisation techniques. Prerequisite: MUSI 1572.

3 credits

**MUSI 2574 TROMBONE IV**

Advanced study of techniques of the instrument, sound production and projection, reading at first sight, expansion of the register and the repertoire and improvisation. Prerequisite: MUSI 2573.

3 credits

**MUSI 2583 BASS III**

Introduction to improvisation and reading charts with melodies and basses written in different popular music styles and the transcription of solos of established musical literature. Prerequisite: MUSI 1582.

3 credits

**MUSI 2584 BASS IV**

A more in-depth study of techniques for the instrument, reading at first sight and advanced improvisation. Prerequisite: MUSI 2583.

3 credits

**MUSI 2593 GUITAR III**

Intermediate to advanced study of techniques for the instrument with emphasis on improvisation and the repertoire of the instrument, especially in jazz. Prerequisite: MUSI 1592.

3 credits

**MUSI 2594 GUITAR IV**

Advanced study of techniques for the instrument with emphasis on advanced improvisation and expansion of the characteristic repertoire. Prerequisite: MUSI 2593.

3 credits

**MUSI 2603 DRUMS III**

Emphasis on reading popular music styles that use 3/4, 5/4 and 7/4 time signatures. Introduction to improvisation. Prerequisite: MUSI 1602.

3 credits

**MUSI 2604 DRUMS IV**

The study of jazz, advanced improvisation and reading at first sight with changes in time signatures. Prerequisite: MUSI 2603.

3 credits

**MUSI 2613 PERCUSSION III**

Emphasis on reading musical styles that use 3/4, 5/4, and 7/4 time signatures. Introduction to improvisation. Prerequisite: MUSI 1612.

3 credits

**MUSI 2614 PERCUSSION IV**

Study of jazz, advanced improvisation and reading at first sight with changes in beat. Prerequisite: MUSI 2613.

3 credits

**MUSI 2624 HARMONY II**

Study of the altered and extended chords. Emphasis on auditory discrimination, harmonic dictation, the analysis of progressions and the use of the chords in the accompaniment of popular melodies. Prerequisites: MUSI 2623.

3 credits

**MUSI 2625 HARMONY III**

Detailed study of the contemporary techniques of harmonization. Emphasis on non-functional harmony, non-tertiary harmony, modal harmony and the poly-chords. Analysis of works that exhibit the mentioned techniques. Practice of exercises in the different techniques learned. Prerequisite: MUSI 2624.

3 credits

**MUSI 2633 VIOLIN III**

Broader study of the technical skills, interpretation, musical reading and improvisation for the performance of the instrument in pop music and jazz. Prerequisite: MUSI 1632 or placement by audition.

3 credits

**MUSI 2634 VIOLIN IV**

Continuation of the study of technique and musical reading with emphasis on improvisation and the repertoire for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2633.

3 credits

**MUSI 2643 VOICE III**

Development of agility, flexibility, extension of register, the importance of the dynamics and intonations through extensive literature. Emphasis on the interpretation and memorization of popular songs for the student's register of voice with an introduction to improvisation. Prerequisite: MUSI 1642 and have passed the entrance examination or by validation.

3 credits

**MUSI 2644 VOICE III**

Emphasis on more advanced vocal exercises and on style interpretations, state of mind, color and shades. Prerequisite: MUSI 2643.

3 credits

**MUSI 2653 VIOLA III**

Broader study of the technical skills, interpretation, musical reading and improvisation for the performance of the instrument in pop music and jazz. Prerequisite: MUSI 1652 or placement by audition.

3 credits

**MUSI 2654 VIOLA IV**

Continuation of the study of the technique and musical reading with emphasis on improvisation and the repertoire for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2653.

3 credits

**MUSI 2673 CELLO III**

Broader study of the technical skills, interpretation, musical reading and improvisation, for the performance of the instrument in pop music and jazz. Prerequisite: MUSI 1672 or placement by audition.

3 credits

**MUSI 2674 CELLO IV**

Continuation of the study of the technique and musical reading with emphasis on improvisation and the repertoire for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2673.

3 credits

**MUSI 2703 GRADUATION CONCERT**

Preparation of a 25 minutes recital to be presented in its totality before a jury under the guidance of the candidate's professor. Selection of the repertoire, the preparation of the arrangements and the coordination of the rehearsals. These pieces change each academic term. Includes filming the student's performance in audio and video. The course is passed with a minimum grade of B. Prerequisite: Be a candidate for graduation.

3 credits

**MUSI 3020 MUSIC AND RESEARCH: ARCHIVES**

Theoretical analysis of research methodologies in historical archives and private collections. Application of highly developed cybernetic search methodologies and the work in virtual archives. Prerequisite: MUSI 2080.

3 credits

**MUSI 3030 MUSIC AND RESEARCH: FIELDWORK**

Theoretical analysis of the methodologies of field research. Application of the practices of ethnographic interviews, observation and participation in public activities of ethnographic value. Prerequisite: MUSI 2080.

3 credits

**MUSI 3040 MUSIC AND RESEARCH: DESIGN AND WRITING**

Design and carrying out of a musical research. Practical application of the methods and procedures of academic research. Writing of a monographic work that meets the requirements with regard to the formats and current styles in anthropology and music history writings. Prerequisites: MUSI 3020, 3030.

3 credits

**MUSI 3505 FLUTE V**

Advanced study of the instrument with emphasis on contemporary techniques of improvisation in Jazz as well as in Latin American genres. Preparation of a standard repertoire of popular music. Evaluation by a jury. Prerequisite: MUSI 2504.

3 credits

**MUSI 3506 FLUTE VI**

Advanced study of the instrument with emphasis on a review of all the concepts learned until converting them into professional practice. Preparation of a repertoire for the graduation recital. Evaluation by a jury. Prerequisite: MUSI 3505.

3 credits

**MUSI 3515 PIANO V**

Continuation of the study and performance of all the major and minor scales in 2nd, 3rd, 4th and 5th intervals. Emphasis on improvisation and accompaniment. Application of the techniques of re harmonization and use of transcription as an auditory training tool. Evaluation by a jury. Prerequisite: MUSI 2514.

3 credits

**MUSI 3516 PIANO VI**

Continuation of the study and performance of all the major and minor scales in 6th and 7th intervals. Improvisation and accompaniment will be emphasized. The techniques of re harmonization will be applied and transcription as an auditory training tool will be used. Pieces of the classic repertoire and Puerto Rican music in format of *Solo* or *Rhythm Section* are included. Evaluation by a jury. Prerequisite: MUSI 3515.

3 credits

**MUSI 3525 PUERTO RICAN CUATRO V**

Study and development of reading by intervals in all the registry of the instrument. Integration of the classic repertoire for solo or duet. Emphasis on the reading of compound rhythms and the study of syncopation. Evaluation by a jury. Prerequisite: MUSI 2524.

3 credits

**MUSI 3526 PUERTO RICAN CUATRO VI**

Profound study and the development of an advanced repertoire with emphasis on native music: Danzas, Mazurcas, Valses, Paso Dobles and others. Also, a repertoire of Jazz and of popular international the music is included. This course serves as preparation for the Graduation Recital course. Evaluation by a jury. Prerequisite: MUSI 3525.

3 credits

**MUSI 3545 SAXOFÓN V**

Advanced study of the instrumental technique and improvisation skills. The classic repertoire of the instrument is also included to foment integral development, from the historical point of view, as well as the stylistic. Evaluation by a jury. Prerequisite: MUSI 2544.

3 credits

**MUSI 3546 SAXOFÓN VI**

Advanced study of the instrumental technique and the vanguard improvisation trends. Also, the European classic repertoire and the Puerto Rican one are included to foment the holistic musical development. Evaluation by a jury. Prerequisite: MUSI 3545.

3 credits

**MUSI 3555 TRUMPET V**

Advanced study of improvisation using standards of Jazz in combo format. Studies for the trumpet will be included, only of the classic and popular repertoire to develop the high registry. Evaluation by a jury. Prerequisite: MUSI 2554.

3 credits

**MUSI 3556 TRUMPET VI**

Advanced study of the technique of the instrument with emphasis on the expansion of the registry and the development of the art of improvisation in different contexts especially in Jazz and afro-Caribbean music. The course is structured to be the introduction to the Graduation Recital course. Evaluation by a jury. Prerequisite: MUSI 3555.

3 credits

**MUSI 3575 TROMBONE V**

Emphasis on the presentation of the graduation concert. Study of the advanced techniques of the instrument: production and projection of sound, reading at first sight, the extension of the registry, the repertoire and improvisation. Evaluation by a jury. Prerequisite: MUSI 2574.

3 credits

**MUSI 3576 TROMBONE VI**

Emphasis on the presentation of the graduation concert. Study of the advanced techniques of the instrument (besides including those of Trombone V): Jazz scales and patterns, the variants of the modes (increased lidio, lidio b7, locrio #2, super locrio and other increased and diminished scales. Evaluation by a jury. Prerequisite: MUSI 3575.

3 credits

**MUSI 3585 BASS V**

Work with a repertoire of highly difficult popular songs in different styles with emphasis on melodic improvisation. Application of all the harmonic material studied in courses MUSI 0581, 0582, 1581, 1582, 2583, 2584 as well as all the performance techniques of the instrument. Evaluation by a jury. Prerequisite: MUSI 2584.

3 credits

**MUSI 3586 BASS VI**

Continuation of the work with the repertoire of highly difficult popular songs in different styles. Emphasis on melodic improvisation and the performance of all the different techniques of the instrument. Evaluation by a jury. Prerequisite: MUSI 3585.

3 credits

**MUSI 3595 GUITAR V**

Continuation in technical studies and the application to the concepts of improvisation on the guitar that will be applied to musical styles within the Jazz and the popular music genres. Application of the studies and exercises to the available repertoire. In addition, development of the accompaniment skills, in the different musical styles, as well as in their application of improvisation techniques. Evaluation by a jury. Prerequisite: MUSI 2594.

3 credits

**MUSI 3596 GUITAR VI**

Continuation of technical studies and the application to the concepts of improvisation on the guitar applied to the musical styles within the Jazz and the popular music genres. Application of studies, exercises available to the repertoire and development in the accompaniment skills to different musical styles and application of the improvisation techniques. Identification of themes as an introduction to the student's graduation concert. Evaluation by a jury. Prerequisite: MUSI 3595.

3 credits

**MUSI 3605 DRUMS V**

Continuation course for development in the performance on the drum with emphasis on the technique, musical reading, accompaniment skills and improvisation in blending styles. Evaluation by a jury. Prerequisite: MUSI 2604.

3 credits

**MUSI 3606 DRUMS VI**

Continuation course for development in the performance on the drum with emphasis on the technique, musical reading, the accompaniment skills and improvisation in classified styles like *Be-pop*, *ECM* and *Avantgarde*. Work will also be done on open solos. Evaluation by a jury. Prerequisite: MUSI 3605.

3 credits

**MUSI 3615 PERCUSSION V**

Continuation course for development in the performance of percussion instruments with emphasis on the technique, musical reading, the accompaniment skills and improvisation in blending styles. Greater importance to keyboard instruments (mallets). Evaluation by a jury. Prerequisite: MUSI 2614.

3 credits

**MUSI 3616 PERCUSSION VI**

Continuation course for development in the performance of percussion instruments with emphasis on the technique, musical reading, the accompaniment skills and improvisation in classified styles like *Be-pop*, *ECM* and *Avantgarde*. Work will also be done on open solos. Emphasis on keyboard instruments (mallets) and on the Graduation Recital repertoire. Evaluation by a jury. Prerequisite: MUSI 3615.

3 credits

**MUSI 3635 VIOLIN V**

Advanced study of the instrument with emphasis on advanced techniques in improvisation for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2634.

3 credits

**MUSI 3636 VIOLIN VI**

Integration study of the concepts and skills learned, directed to professional practice. This course serves as preparation for the course of Graduation Recital. Prerequisite: MUSI 3635.

3 credits

**MUSI 3645 VOICE V**

Emphasis on the development of the acquired knowledge of vocal technique, giving importance to establishing the student's own concept of his voice and to the interpretation of different styles. Practice directed to the exploration of individual musical creativity and to expand improvisation skills. Evaluation by a jury. Prerequisite: MUSI 2644.

3 credits

**MUSI 3646 VOICE VI**

Emphasis on the development of the personal artistic concept in performance and the use of the knowledge of vocal technique and other resources acquired. Practice directed fundamentally to the interpretation and the expansion of improvisation skills. Evaluation by a jury. Prerequisite: MUSI 3645.

3 credits

**MUSI 3655 VIOLA V**

Advanced study of the instrument with emphasis on the advanced techniques of improvisation for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2654 or placement by audition.

3 credits

**MUSI 3656 VIOLA VI**

Integration study of the concepts and the skills learned, directed to professional practice. This course serves as preparation for the course of Graduation Recital. Prerequisite: MUSI 3535 or placement by audition.

3 credits

**MUSI 3675 CELLO V**

Advanced study of the instrument with emphasis on the advanced techniques of improvisation for performance of the instrument in pop music and jazz. Prerequisite: MUSI 2674 or placement by audition.

3 credits

**MUSI 3676 CELLO VI**

Integration study of the concepts and skills learned, directed to professional practice. This course serves as preparation for the course of Graduation Recital. Prerequisite: MUSI 3575 or placement by audition.

3 credits

**MUSI 3901 COMPOSITION 1**

Introduction to the study of traditional techniques of musical composition and orchestration in the field of popular music. Prerequisite: have passed all second year musical courses in the field of popular music.

3 credits

**MUSI 4724 ARRANGEMENTS I**

Introductory study of the harmonic function of chords and their relation to scales to achieve the adequate combination for the instrument and orchestration. Original arrangements of popular music students. Prerequisites: MUSI 2623, 2624.

3 credits

**MUSI 4734 RECORDING I (M.I.D.I. ROOM)**

Introductory course of the electronic assembly of any type of musical combination, from a piano solo, trio or quartet to a symphonic orchestra. Prerequisite: MUSI 2623.

3 credits

**MUSI 4803 GRADUATION CONCERT**

Selection of the repertoire, preparation of the arrangements and the coordination of the practices for the presentation of a 45 minutes recital before a jury, prepared under the guidance of the professor. Includes filming the student's performance in video and audio. To pass the course, a minimum grade of B is required. Prerequisite: have passed all the major courses and be a candidate for graduation.

3 credits

**Courses in Portuguese (PORT)****PORT 1001, 1002 ELEMENTARY PORTUGUESE**

Essentials of Portuguese grammar with emphasis on the spoken language. Practice in reading and understanding at the elementary level.

4 credits per course

**PORT 2001, 2002 INTERMEDIATE PORTUGUESE**

Review of grammar and study of Portuguese composition. Emphasis on the spoken language. Practice in reading and understanding at the intermediate level. Prerequisite: PORT 1002 or equivalent.

3 credits per course

**Courses in Psychology (PSYC)****PSYC 1051 GENERAL PSYCHOLOGY I**

The historical origins of psychology. Topics surveyed include research methods, basics of psychology, human growth and development, personality, frustration and conflict, psychotherapy and social psychology.

3 credits

**PSYC 1052 GENERAL PSYCHOLOGY II**

Basic principles and methods of psychology as a biological and behavioral science. Learning, memory, thinking, perception, drug influence on behavior, and the psychological bases of development, sensation, motivation, emotion and other aspects of behavior.

3 credits

**PSYC 2000 WRITING IN PSYCHOLOGY**

Development of bibliographical research and writing skills. Includes the writing of monographs, review of scientific literature, critical analysis and research reports using the APA publishing style.

1 credit

**PSYC 3001 STATISTICAL METHODS I**

Statistical techniques and their practical application as used in the field of the behavioral sciences. Special emphasis given to descriptive statistics. Prerequisite: GEMA 1000.

3 credits

**PSYC 3002 STATISTICAL METHODS II**

Statistical inference, probability and the statistical inference with independent and correlated models. Requires 45 hours of lecture and 15 hours of lab. Prerequisite: PSYC 3001.

3 credits

**PSYC 3100 LEARNING**

Description of the conditions and fundamental principles of the learning process resulting from scientific research. Examination of the classical and operant conditioning, and the origins of cognitive learning. Includes simulations and demonstrations.

3 credits

**PSYC 3113 PHYSIOLOGICAL PSYCHOLOGY**

Review of the relation between behavior, physiological processes and the nervous system. Emphasis on theories and empirical findings related to physiological psychology and neuroscience. Prerequisite: PSYC 1052.

3 credits

**PSYC 3313 INDUSTRIAL-ORGANIZATIONAL PSYCHOLOGY**

Review of the origins of industrial/organizational psychology and its research methods in the labor scenario. Emphasis on the study of recruitment processes, personnel selection and performance evaluation. Includes aspects related to personnel training on labor behavior.

3 credits

**PSYC 3144 MOTIVATION AND EMOTION**

Analysis of the theories and research related to the development of emotional reactions as well as the ways that these and other behavioral patterns are aroused and expressed in humans.

3 credits

**PSYC 3220 DEVELOPMENTAL PSYCHOLOGY**

Review of the cultural, physical, cognitive, social and emotional aspects and processes of development, from the prenatal period to late adulthood.

3 credits

**PSYC 3221 LIFE CYCLE I**

Analysis of the cultural, physical, cognitive, social and emotional aspects of development from the pre-natal through the pre-adolescent period. Emphasis on the processes underlying the acquisition and development of behavior throughout the developmental periods; normative behavior for particular ages and developmental stages. Evaluation of selected theories, contemporary issues and practical applications.

3 credits

**PSYC 3222 LIFE CYCLE II**

Analysis of the cultural, physical, cognitive, social and emotional aspects of development from adolescence through senescence. Emphasis on the processes underlying the acquisition and development of behavior. Normative behavior for particular ages and developmental stages. Evaluation of selected theories, contemporary issues and practical applications.

3 credits

**PSYC 3268 INTRODUCTION TO COUNSELING AND PSYCHOTHERAPY**

Consideration of various psychotherapeutic approaches and processes in therapy. A critique and method including individual, group and family therapy. Consideration of the role of insight in producing changes in behavior, in establishing objectives of treatment and in the rationale for using behavior, in such specific psychotherapeutic techniques as interpretation and role playing.

3 credits

**PSYC 3300 SOCIAL PSYCHOLOGY**

Historical development of social psychology taking into account the socialization processes, social perception, attitudes, violence and aggression, among others, and their application to the reality of the social context. Prerequisite: PSYC 1051.

3 credits

**PSYC 3313 INDUSTRIAL PSYCHOLOGY**

Possible applications of psychology in business and industry, and in improving organizational effectiveness in general supervision, leadership, morale, personnel selection and training; human factors, engineering and consumer psychology.

3 credits

**PSYC 3315 INTRODUCTION TO SCHOOL PSYCHOLOGY**

Review of the origin and evolution of school psychology as a specialization for psychologists in Puerto Rico. Emphasis on the code of ethics and roles of the school psychologist. Includes aspects of mental retardation and learning problems.

3 credits

**PSYC 4000 FUNDAMENTALS OF THE PSYCHOLOGICAL INTERVIEW**

Analysis of the principles and application of psychological interview as an instrument of evaluation, follow up and decision making.

3 credits

**PSYC 4100 BEHAVIOR MODIFICATION**

Analysis of the theories and methods of behavior modifications. Practices of systematic observation and analysis of behavior modification cases. Prerequisite: PSYC 3100.

3 credits

**PSYC 4103 COMMUNITY INTERVENTION**

Theoretical foundations, methods and models of community psychology and human behavior from a group perspective. Exposure to practical experience to develop community intervention and evaluation skills, emphasizing preventive aspects of psychosocial problems. Prerequisite: PSYC 3300.

3 credits

**PSYC 4113 CONTEMPORARY THEORIES**

Development of psychology in recent times with emphasis on trends and issues in current psychological theory.

3 credits

**PSYC 4200 PRINCIPLES OF PSYCHOLOGICAL TESTING**

Principles and methods underlying the construction and evaluation of psychological tests. The process of psychological testing in a broad and dynamic context. The implications of psychological testing taking into account the sociocultural context of the person being evaluated. Prerequisites: PSYC 1051, 3001.

3 credits

**PSYC 4210 COGNITIVE PSYCHOLOGY**

Review of theoretical and empirical foundations of cognitive psychology. Emphasis is given to attention, memory, recognition of objects, motor control, spatial processing, executive functions, language, and intellectual processes. Prerequisite: PSYC 3113.

3 credits

**PSYC 4213 PSYCHOPATHOLOGY**

The psychology of deviant behavior. Analysis of problems of the various forms of behavior disorders. Varieties of disordered experiences and conduct; their contribution to an understanding of more effective personal and social adjustment. Specific disorders include neurosis and psychosis as well as psychosomatic and conduct disturbances.

3 credits

**PSYC 4234 PSYCHOLOGY OF PERSONALITY**

Different approaches to the study of personality from a historic perspective. Analysis of the role assigned to personality as an object of study and treatment. Prerequisite: PSYC 1051.

3 credits

**PSYC 4300 GROUP PROCESSES**

Theory and practical experience pertaining to small group behavior. Small group work to produce an awareness of group forces and pressures, and to develop insight into personal relationships.

3 credits

**PSYC 4313 ORGANIZATIONAL PSYCHOLOGY**

Organizational behavior. The role of individuals in the organizational environment. Application of experience in the field of organizational behavior. Prerequisite: PSYC 1051.

3 credits

**PSYC 4520 CRISIS INTERVENTION**

Discussion and application of models and techniques for intervention in crisis. Exposure to simulated practical experience in which psychotherapeutic methods are used. Prerequisite: PSYC 1051.

3 credits

**PSYC 4600 EXPERIMENTAL PSYCHOLOGY**

Exposure to the scientific method in the study of behavior. The rationale and methodology in the interpretation of data and design of experiments, as well as the application of research principles to theory and practice. Requires 45 hours of lecture and 30 hours of lab. Prerequisite: PSYC 3002.

4 credits

**PSYC 4910 EXPERIENCE IN PSYCHOLOGY SCENARIOS**

Supervised practice in scenarios or activities related to applied psychology or research. Requires 120 work-hours of practice or assigned research, with prior authorization of the professor and the department director.

3 credits

**Courses in Psychosocial Human Services (HUSE)****HUSE 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 explanations.

3 credits

## **Courses in Public Administration (PUAD)**

### **PUAD 3300 GOVERNMENT ACCOUNTING**

Principles and procedures applicable to governmental accounting: fund reporting, budget relations and interfund relationships will be emphasized.

3 credits

### **PUAD 3510 PUBLIC BUDGET PLANNING**

Role of the modern budget in determining policies regulating government operations, intergovernmental relations, and the government's relation to private economy. Emphasis on unit costs, work programs and budgetary analyses.

3 credits

## **Courses in Radiological Science (RASC)**

### **RASC 4000 RESEARCH IN RADIOLOGICAL SCIENCES**

Analysis of the fundamentals of research methodology. Discussion and presentation of research studies in the radiological and health sciences fields and their application to professional practice.

3 credits

### **RASC 4030 PROFESSIONAL SEMINAR**

Critical analysis of present trends in the field of diagnostic images. Includes the discussion and presentation of exceptional cases found in the practice of the profession.

3 credits

## **Courses in Radiological Technology (RATE)**

### **RATE 1100 RADIATION PROTECTION**

Vision of the principles of radiation protection. The radiological technologist responsibilities for protecting patients, personnel and the public in general. Concepts of ALARA, "As Low as Reasonably Achievable" and NIRL, "Negligible Individual Risk Level". Study of the agencies in charge of radiation protection and its regulations. Prerequisites: Be admitted to the Radiological Technology Program. Corequisites: RATE 1101, 1110, 1125.

1 credit

### **RATE 1101 HUMAN BIOLOGY 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 HUMAN BIOLOGY 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 16<sup>th</sup> 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 16<sup>th</sup> 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: Military Science (MISC)**

The following courses are offered by the Department of Military Science or Aerospace Studies of the University of Puerto Rico in Río Piedras or Mayagüez (see the norms that apply to these courses in this catalog, "General Information" concerning Reserve Officers Training Corps).

**MISC 3111 FOUNDATIONS OF OFFICERSHIP**

Introduces students to issues and competencies that are central to a commissioned officer's responsibilities. Establishes a framework for understanding officership, leadership, and army values followed and "life skills" such as physical fitness and time management.

2 credits

**MISC 3112 BASIC LEADERSHIP**

Establishes foundation of basic leadership fundamentals such, as problem solving, communications, briefings and effective writing, goal setting, techniques for improving listening and speaking skills and introduction to counseling.

2 credits

**MISC 3121 INDIVIDUAL LEADERSHIP STUDIES**

Students identify successful leadership characteristics through observation of others and self through experiential learning exercises. Students record observed traits (good and bad) in a dimensional leadership journal and discuss observations in small group settings.

2 credits

**MISC 3122 LEADERSHIP AND TEAMWORK**

Study examines how to build successful teams, various methods for influencing action, effective communication in setting and achieving goals, the importance of timing the decision, creativity in the problem solving process, and obtaining team buy-in through immediate feedback.

2 credits

**MISC 3141, 3142 ENGLISH FOR TODAY'S ARMY I, II (BASIC LEVEL)**

This course is designed for those students who have demonstrated a limited proficiency in the English language in the English Comprehension Level Test provided by the Defense Language Institute, English Language Center at Lackland Air Base, San Antonio, Texas. Emphasis on pronunciation, reading comprehension, vocabulary and a general review of grammar.

1 credit per course

**MISC 3143, 3144 ENGLISH FOR TODAY'S ARMY 1, II (INTERMEDIATE LEVEL)**

This course is designed for those students who have demonstrated a limited proficiency in the English language in the English Comprehension Level Test provided by the Defense Language Institute, English Language Center at Lackland Air Base, San Antonio, Texas, Emphasis on pronunciation, reading comprehension, vocabulary and a general review of grammar.

1 credit per course

**MISC 3151, 3152 MILITARY BRIEFING I, II**

Courses designed for third year Military Science students who have demonstrated certain ability or dexterity in the English language as measured by the English Comprehension Level Test (ECLT), the official Department of Defense English language proficiency test. Practice in military briefings, with special emphasis on formal and informal outlines, and the correct use of military visual aids. Leadership evaluation, including an acculturation seminar. Each course requires 30 hours of lecture, seminars or practical exercises. To be taken only as electives.

2 credits per course

**MISC 4111 LEADERSHIP AND PROBLEM SOLVING**

This course is designed to enable a student with no prior military or cadet experience to quickly acquire essential cadet knowledge and develop skills necessary for integration into the cadet battalion and to show successful performance of key cadet tasks. Cadets are first introduced to principles of physical fitness and a health lifestyle so they may effectively work to improve or maintain their physical fitness from the beginning of the term. Next, cadets are introduced to the Leader Development Program that will be used to evaluate their leadership performance and provide them development for the rest of their years as cadets. To help prepare cadets for their responsibilities in teaching and participating in Military Sciences and Leadership Labs, cadets are taught how to plan and conduct individual and small unit training as well as basic tactical principles.

2 credits

### **MISC 4112 LEADERSHIP AND ETHICS**

Course designed to continue the development of cadets as leaders by presenting instruction in the three foundational areas on interpersonal communication, values and ethics, and leadership. The course opens with an introduction and overview of the summer training opportunities at the National Advanced Camp (NALC) and other available training programs. Next, cadets address the topic of interpersonal communication and Officership.

2 credits

### **MISC 4121 LEADERSHIP AND MANAGEMENT**

This course enables cadets to make informed career decisions as they prepare their accession documents. It also concentrates on Army operations and training management, communication and leadership skills and supports the beginning of the final transition from cadet to lieutenant.

2 credits

### **MISC 4122 OFFICERSHIP**

This course focuses on four areas: first, the course gives cadets a basic foundation in military law; next, skills and information on leadership and military science are pulled together in a series of case studies where cadets apply what they have learned from earlier courses; third, cadets are given a series of hands-on-practice sessions to assist them with their transition to officers; and last, the Senior Leadership Project offers cadets a culmination of the ROTC learning experience in the form of a semester-long activity whereby cadets can integrate, apply and demonstrate their knowledge and mastery of military leadership.

2 credits

### **MISC 4141 MILITARY WRITING I**

Courses designed for military students who wish to improve their military writing skills in English. Emphasis on military writing styles and formats. Topics include military memorandums, autobiographies, military history analysis, and a military ethics paper. Each course requires 30 hours of lecture, seminars, case studies, or practical exercises. To be taken only as electives.

2 credits

## **Courses in Reserve Officers Corps: Aerospace Studies (AEST)**

### **AEST 3001, 3002 THE AIR FORCE TODAY**

Study of the Air Force in the contemporary world through study of the total structure of the Armed Forces, including the offensive strategic forces of aid or support. Requires one hour of discussion and two hours of lab per week. Course 3001 is a prerequisite of 3002.

2 credits per course

### **AEST 3003 THE AIR FORCE TODAY**

Study of the Air Force in the contemporary world, through study of the total structure of the Armed Forces including the offensive strategic forces of aid or support. Requires one hour of discussion and two hours of lab per week. Prerequisite: AEST 3002.

2 credits

### **AEST 3011, 3012 THE DEVELOPMENT OF AIR POWER**

The development of air power from the use of balloons and dirigibles to the present. It relates, in addition, to the places where the United States Air Force is used in missions of aid and civic assistance, as well as in conflicts such as the war of south-east Asia. Requires one hour of discussion and two hours of lab per week. Course 3011 is a prerequisite of 3012.

2 credits per course

### **AEST 3013 THE DEVELOPMENT OF AIR POWER**

The development of air power from the use of balloons and dirigibles to the present. It relates, in addition, to the places where the United States Air Force is used in missions of aid and civic assistance, as well as in conflicts such

as the war of south-east Asia. Requires one hour of discussion and two hours of lab per week. Prerequisite: AEST 3012.

2 credits

#### **AEST 4001, 4002 LEADERSHIP AND MANAGEMENT IN THE AIR FORCE**

Application of the concepts of management with special attention in the individual as a leader in the Air Force. Topics such as individual motivation and behavior processes, leadership, group dynamics, basic managerial processes for decision-making, analytical methods for planning, organizing and controlling; personal and organizational values; power and the organizational policy are discussed. The abilities necessary to communicate in both oral and written English are emphasized. Real cases of the Air Force are used to improve the student processes of learning and communication. Requires three hours of discussion and two hours of lab per week. Course 4001 is a prerequisite of 4002.

4 credits per course

#### **AEST 4003 LEADERSHIP AND MANAGEMENT IN THE AIR FORCE**

Application of the concepts of management with special attention in the individual as a leader in the Air Force. Topics such as individual motivation and behavior processes, leadership, group dynamics, basic managerial processes for decision-making, analytical methods for planning, organizing and controlling; personal and organizational values; power and the organizational policy are discussed. The abilities necessary to communicate in both oral and written English are emphasized. Real cases of the Air Force are used to improve the student processes of learning and communication. Requires three hours of discussion and two hours of lab per week. Requisite: AEST 4002.

4 credits

#### **AEST 4011, 4012 NATIONAL SECURITY FORCES IN CONTEMPORARY AMERICAN SOCIETY**

Factors that affect the national security policy. The concept of military professionalism and the patterns of relationship between the civil and the military are examined. The domestic and international factors that affect the United States defense policy are analyzed. The development from World War II of the defense strategy and the methods to handle conflicts are examined. The multiple variables that affect the formulation and the implementation of the national security policy are studied. Requires three hours of discussion and two hours of lab per week. AEST 4003 is a prerequisite of 4011 and AEST 4011 is a prerequisite of 4012.

4 credits per course

#### **AEST 4013 NATIONAL SECURITY FORCES IN CONTEMPORARY AMERICAN SOCIETY**

Factors that affect the national security policy. The concept of military professionalism and the patterns of relationship between the civil and the military are examined. The domestic and international factors that affect the United States defense policy are analyzed. The development from World War II of the defense strategy and the methods to handle conflicts are examined. The multiple variables that affect the formulation and the implementation of the national security policy are studied. Requires three hours of discussion and two hours of lab per week. Prerequisite: AEST 4012.

4 credits

### **Courses in Restaurant and Food Services Administration (FSMT)**

#### **FSMT 1210 SANITATION AND SECURITY IN FOOD SERVICES**

Elaboration of a plan using current control guides in preparing and serving foods. Study of the biological, chemical and physical aspects in food security. Discussion and application of health and security practices in the work scene.

1 credit

#### **FSMT 1220 SERVICE THEORIES AND PRACTICES**

Study of general norms for serving tables and formal table manners. Discussion of theories and styles for serving clients. Application of service norms.

2 credits

### **FSMT 2101 PURCHASING SYSTEMS AND INVENTORY AND STORAGE CONTROL**

Description of purchasing, distribution and selection systems. Study of product quality and available specialized equipment for different food services. Discussion of different types of storages and inventory controls.

2 credits

### **FSMT 2104 BUFFET AND CATERING SERVICES**

Description of the development, operation and management of buffet and catering businesses. Comparison of traditional meals and buffets. Planning of buffet and catering services. Design of creative concepts in planning the business. Prerequisites: FSMT 1210, 1220, TURI 3302.

3 credits

### **FSMT 2203 RESTAURANT MANAGEMENT**

Application of management skills to analyze, plan, implement and control the operation of a restaurant. Identification and application of international concepts in managing this type of establishment. Requires additional time in an open lab. Prerequisites: FSMT 1210, 1220, 2101, HMG T 3302.

3 credits

### **FSMT 2915 RESTAURANT MANAGEMENT INTERNSHIP**

Practice in a real scenario of the learned concepts, skills and attitudes, especially in the major courses. Work experience supervised by a member of the faculty in the field of restaurant management. Students are required to devote at least 15 hours to lecture courses and 200 hours to practice. Must be taken with previous authorization of the director of the Department. Prerequisites: ACCT 1161, FSMT 2101, TURI 3302.

3 credits

## **Courses in Russian (RUSS)**

### **RUSS 1001, 1002 ELEMENTARY RUSSIAN**

Essentials of Russian grammar with emphasis on the spoken language.

4 credits per course

## **Courses in Small Business Administration (SBAD)**

### **SBAD 2110 INTRODUCTION TO SMALL BUSINESS ADMINISTRATION**

Administration and organization in relation to types of businesses, location and physical plant. Application of marketing, finance, accounting concepts, and government laws applying to the administration of small businesses.

3 credits

### **SBAD 2210 RELATIONS WITH THE SMALL BUSINESS CONSUMER**

Psychological and socio-cultural factors affecting the relations between clients and the development of a small business. Analysis of the relations between clients and the search of alternatives to satisfy their needs, and the influences that they may have in the decision-making process of the organization. Prerequisites: MKTG 1210, SBAD 2110.

3 credits

### **SBAD 3220 PROMOTION AND SELLING THROUGH INTERNET**

Design, development and implementation of promotional and sales material through the Internet. Search for information to help the management of small business in the decision-making process. Strategies and methods, which include the image of the business, target market, and consumer buying behavior. Analysis and selection of segmentation methods, planning design and promotional plan. Prerequisites: MKTG 1210, SBAD 2110, GEIC 1010.

3 credits

### **SBAD 3330 HUMAN RESOURCES ADMINISTRATION IN SMALL BUSINESSES**

Techniques and Methodologies in the management of employees in small businesses. Includes roles of management and leadership styles, as well as interpersonal relations. Emphasis on techniques for planning, recruitment,

selection, placement, training, and management of specific employee problems, with main emphasis on communication and motivation of employees. Includes orientation and training on benefits, as well as their assessment. Prerequisite: BADM 1900.

3 credits

### **SBAD 3335 FEDERAL AND PUERTO RICAN LAWS FOR SMALL BUSINESS ADMINISTRATION**

Basic Principles of laws and regulations applicable to small business administration. It includes the civil code of Puerto Rico, commercial code, annotated laws of Puerto Rico, federal laws, and regulations of the Small Business Administration agency. Prerequisite: SBAD 2110.

3 credits

## **Courses in Social Work (SOWO)**

### **SOWO 2503 INTRODUCTION TO SOCIAL WORK**

Study of the 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. Prerequisites: SOWO 2503, 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. Prerequisites: SOWO 2514, 3462.

3 credits

#### **SOWO 3545 SOCIAL PLANNING AND ACTION**

Processes of planning; social planning; technical and interactional skills necessary for formulation, implementation and evaluation of social plans; responsibilities of social workers as citizens and professionals and their public obligations related to social problems and needs. Prerequisites: SOWO 2503, 2514.

3 credits

#### **SOWO 3566 WOMEN IN SOCIETY**

Interdisciplinary studies to develop student knowledge of and sensitivity to the history, education, employment, sociology and psychology of women. Emphasis on sex roles, stereotyping and recent legislation regarding women's rights in family, education and employment.

3 credits

#### **SOWO 3801 COMMUNICATION AND INTERVIEW PROCESS**

Analysis of the conceptual structure of communication and the intra and interpersonal skills for conducting the interview. Study of the nature, elements, types and characteristics of the interview, as well as of its relation to human diversity, the values, ethics and purposes of the profession. Integration of the theoretical knowledge of communication and the interview to the models of intervention used in Social Work. Prerequisites: SOWO 2514, SOWO 3462.

3 credits

#### **SOWO 3802 REPORT WRITING**

Study of the concepts related to the writing of case histories used in different social welfare agencies and programs. Analysis of social files for individuals, groups and communities. Discussion of ethical and legal aspects of file management. Prerequisite: SOWO 3801.

3 credits

#### **SOWO 3849 CHILD AND FAMILY WELFARE SERVICES**

Problems in parent-child relationships and difficulties in the social functioning of children and adolescents. Introduction to the nature, processes, practice and policies relative to welfare services for children and families; includes support services such as service agencies for the family and mental health clinics; supplementary services such as housekeepers; substitute services such as foster homes, adoption agencies and others.

3 credits

#### **SOWO 4873 SOCIAL 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. Prerequisites: SOWO 3801, SOWO 3504. 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

**Courses in Sociology (SOCl)****SOCI 1030 INTRODUCTION TO SOCIOLOGY**

Definition of the principles, fundamental concepts and facts related to the scientific study of society.

3 credits

**SOCI 2020 STRUCTURES, CONTINUITY AND CHANGE**

Identification of structures and social institutions and their manifestations through norms, sanctions and the social stratification. Study of the processes of continuity and social changes. Emphasis on collective behavior and the social movements.

3 credits

**SOCI 2040 FAMILY AND SOCIETY**

Description of the family as a social institution in contemporary state and traditional, societies and their influence in the development of the individual's personality.

3 credits

**SOCI 2050 URBAN SOCIETY AND ITS TRANSFORMATION**

Identification of the metropolitan areas: social structures, recent changes, problems, institutions and potentialities.

3 credits

**SOCI 2060 VIOLENCE AND CRIMINAL CONDUCT**

Description of the theories and main criminological schools and their applicability in the interpretation of the characteristics and causes of delinquency in Puerto Rico. Relation between the local and global violence and criminal conduct. Emphasis on drug trafficking, social inequality, the institutionalized values and the criminal policy. Includes review of criminology's auxiliary sciences, such as: penology, criminology and victimology.

3 credits

**SOCI 2070 CIVIL SOCIETY AND SELF-MANAGEMENT**

Description of the theoretical perspective on civil society. Review of the implications of these perspective in the development of communitarian socio-economic strategies.

3 credits

**SOCI 2080 CRIMINAL JUSTICE SYSTEM**

Discussion of the criminal justice system in terms of its components: the police, the public ministry, the courts and the correctional institutions.

3 credits

**SOCI 3010 DIVERSITY AND MARGINALITY**

Analysis of the exclusion and inclusion processes of social groups from the point of view of ethnic differences and similarities and of gender, age, handicapped people and other points of view related to prejudices and the social tensions.

3 credits

**SOCI 3070 COMMUNITY AND SOCIOECONOMIC DEVELOPMENT**

Analysis of the strategies communities use for the development of the human and physical resources of a geographic zone. Identification of the planning initiatives that result in an increase of communitarian capital and the socioeconomic well-being of the community.

3 credits

**SOCI 3513 RURAL SOCIETY IN TRANSITION**

Analysis of the agrarian producing societies, the changes affecting rural life and the current programs for the development of rural society.

3 credits

**SOCI 3560 REHABILITATION SYSTEMS FOR THE DELINQUENT**

Analysis of the different systems of rehabilitation of delinquents and their application in the public and private institutions of the country and the social reaction that they generate.

3 credits

**SOCI 3570 NONPROFIT ORGANIZATIONS**

Analysis of pertinent aspects of the historical development of nonprofit communitarian organizations. Includes ideas, establishment of operations and contemporary challenges.

3 credits

**SOCI 3634 GROWTH AREAS**

Analysis of developing societies, the solutions and alternatives, product of the internal development and integration into global systems in Latin America, Asia and Africa.

3 credits

**SOCI 3645 STUDIES OF POPULATION**

Introduction to the sociological analysis of human populations in qualitative, quantitative and statistical terms. Emphasis on the processes of demographic changes of the Puerto Rican population and the global population.

3 credits

**SOCI 3753 SOCIAL PROBLEMS OF PUERTO RICO**

Analysis of social problems from the sociological perspective, their magnitude and the mechanisms used for their solution. Review of the contradictions and anomalies exhibited by contemporary Puerto Rican society. Integration of the alternatives related to viable economic development and the construction of a better quality of life.

3 credits

**SOCI 3900 HISTORY OF SOCIAL THOUGHT**

Analysis of the history of social thought from antiquity, with emphasis on centuries XIX and XX, in Europe, Asia and the Americas.

3 credits

**SOCI 4050 SOCIOLOGICAL THEORIES**

Analysis of the theoretical classic and modern approaches of sociology. Review of contemporary theories and postmodern trends.

3 credits

**SOCI 4060 CRIMINOLOGY AND DELINQUENCY**

Review of the scientific aspects of current criminal research based on the use of technology as a tool. Review of the process of the criminal act through inspection of the scene and the application of techniques.

3 credits

**SOCI 4220 GENDER, SOCIETY AND CULTURE**

Interdisciplinary study of various fields of knowledge from the perspective of the social construction of gender. The principle manifestations and representations of gender are analyzed in areas such as science, technology, education, religion, literature and the arts. Analysis of the integration of gender in the social discourse on sexuality, race, ethnic groups, old age and identity.

3 credits

**SOCI 4600 HUMAN RIGHTS AND SOCIETY**

Identification of the human social and civil rights of people and communities, in the local as well as in the international environment. Specific techniques oriented towards achieving solutions to the diverse problems of people and communities are reviewed. Integration of policies that improve the standards of life, especially of the very poor.

3 credits

**SOCI 4800 SOCIOLOGICAL RESEARCH**

Analysis and practice of methods and techniques of sociological research. Includes the collection and interpretation of data as well as their ethical and political implications. Emphasis on the critical correlation among theories, methods and techniques in the research process. Prerequisites: SOCI 1030, 2020, PSYC 3001.

4 credits

**SOCI 4817 HISTORY OF SOCIAL WELFARE**

Review of programs and institutions designed to ameliorate the social ills from earliest times to the present; present-day methods in social work; U.S. Social Security program. Prerequisites: SOCI 3485 and senior class status.

3 credits

**SOCI 4870 MANAGEMENT OF COMMUNITARIAN PROJECTS**

Review of the theories and planning models and implementation of social communitarian research projects. Exchange of experiences on management strategies and practices in projects and the use of tools that influence monitoring and evaluation.

3 credits

**SOCI 4910 INTERNSHIP**

Integration of concepts, ideas and attitudes by means of a supervised practical application experience in communitarian agencies, institutions and organizations where students will be placed in the Internship for a minimum of 75 hours in communitarian social development or in criminology. Includes, in addition, 15 hours of

dialog and discussion in the classroom. Prerequisites: Have passed 12 credits of the major and have an academic index of at least 2.50.

3 credits

### **SOCI 497 \_ SEMINAR**

An integrating analysis of the ideas and main problems of the discipline through the study of variable topics or subjects. Prerequisites: Have passed 9 credits of the major.

3 credits

## **Courses in Spanish (SPAN)**

### **SPAN 2451, 2452 SPANISH COMPOSITION AND LITERATURE FOR NON-NATIVE SPEAKERS**

Through the reading and discussion of selected materials, students are helped to acquire a command of the Spanish language. Emphasis on oral expression and written composition with special stress on syntax. Enrollment limited to twenty students per section.

3 credits per course

### **SPAN 2510 INTRODUCTION TO TEXT ANALYSIS**

Study of the basic techniques in text analysis: theme and plot identification, points of view, styles and prosody. Introduction to literary genres through practice in the analysis of representative works. Prerequisite: GESP 1102.

3 credits

### **SPAN 2541 ADVANCED GRAMMAR I**

Discussion of the phonological, morphosyntactical and semantic systems of the Spanish language. Emphasis on the theoretical explanation and construction of the morphosyntactic structures of the simple sentence.

3 credits

### **SPAN 2542 ADVANCED GRAMMAR II**

Systematic discussion of the morphosyntactic and semantic aspects of complex sentence structures. Emphasis on the theoretical explanation and the construction of complex morphosyntactic structures. Prerequisite: SPAN 2541.

3 credits

### **SPAN 3000 LINGUISTICS**

Analysis of the fundamental concepts of current linguistics in the phonological, lexical semantic and morphosyntactical aspects and their application to the teaching of the Spanish of Puerto Rico.

3 credits

### **SPAN 3011 SPANISH LINGUISTICS I**

Study of the formative and evolutionary process of the Spanish language from its beginnings to the present: phonology and lexicology.

3 credits

### **SPAN 3012 SPANISH LINGUISTICS II**

Study of the formative and evolutionary process of the Spanish language from its beginnings to the present: morphology and syntax. Prerequisite: SPAN 3011.

3 credits

### **SPAN 3015 ORAL COMMUNICATION**

Acquisition and practice of the necessary skills for oral expression through the discussion of different topics and the development of ability in oral comprehension. Presentation and preparation of argumentative and expository speeches. Prerequisite: GESP 2203 with a minimum grade of C.

3 credits

**SPAN 3020 WRITING WORKSHOP**

Analysis and application of the writing process leading to expository and argumentative text production. Emphasis on the application of research techniques in the development of formal written expression. Prerequisite: Have passed GESP 2203 with a minimum grade of C.

3 credits

**SPAN 3021 SPANISH LITERATURE I**

Study of the authors and main movements of Spanish literature from its beginnings to the Golden Age. Analysis of the most representative works of this period.

3 credits

**SPAN 3022 SPANISH LITERATURE II**

Study of the authors and main movements of Spanish literature from the eighteenth century to the present. Analysis of the most representative works of this period.

3 credits

**SPAN 3025 WRITING OF PROFESSIONAL DOCUMENTS**

Development of professional writing skills. Emphasis on research techniques, resumes, reports, and lectures. Computer use in writing. Prerequisite: GESP 2203 with a minimum grade of C.

3 credits

**SPAN 3071 SPANISH-AMERICAN LITERATURE I**

Study of the authors and main movements of Spanish-American literature from the pre-Columbian period to realism-naturalism. Analysis of the most representative works of these periods. Development of oral and written communication skills through analysis of the works studied.

3 credits

**SPAN 3072 SPANISH-AMERICAN LITERATURE II**

Study of the authors and main movements of Spanish-American literature from modernism to the present. Analysis of the most representative works of these periods. Development of oral and written communication skills through analysis of the works studied.

3 credits

**SPAN 3211 PUERTO RICAN LITERATURE I**

Study of the authors and main movements of Puerto Rican literature from chronicles to realism. Analysis of the most representative works of these periods. Development of oral and written communication skills through analysis of the works studied.

3 credits

**SPAN 3212 PUERTO RICAN LITERATURE II**

Study of the authors and main movements of Puerto Rican literature from modernism to the present time. Analysis of the most representative works of these periods. Development of oral and written communication skills through analysis of the works studied.

3 credits

**SPAN 397 \_ SPECIAL TOPICS**

Study of important topics in the area of linguistic or literature. Prerequisites: Authorization of the Department Director.

3 credits

**SPAN 4010 READING WORKSHOP**

Analysis and practice of the reading process for strengthening and refining the understanding and text interpretation skills. Emphasis on the practice of techniques for the development of critical reading.

3 credits

**SPAN 4015 TRANSLATION WORKSHOP**

Development of the basic skills for translation from English to Spanish. Use of translated texts to improve communication in Spanish. Prerequisite: GESP 2203 with a minimum grade of C.

3 credits

**SPAN 4110 LITERATURE OF THE GOLDEN AGE: RENAISSANCE**

Study of the Spanish Renaissance and its most representative authors in its historical-cultural context. Analysis of the main works of this period.

3 credits

**SPAN 4120 LITERATURE 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 2020 ANATOMY AND PHYSIOLOGY OF SPEECH AND LANGUAGE**

Introduction to the mechanisms of the human body related to the processes of auditory reception, essential understanding and voice production, language and verbalization. Emphasis on the respiratory, neurological and muscular systems, and on the organs that create speech: language, hearing, phonation and verbalization.

3 credits

**SPTH 2021 NORMAL DEVELOPMENT OF LANGUAGE**

Study of the normal development of language in children from childhood to adolescence. Includes the necessary mental requirements for language. Review of the different theories of language development and the study of its components. Analysis of the relevance and relationship of normal language development to the acquisition of academic skills and learning. Requires experience in the observation of children in natural environments.

3 credits

**SPTH 2022 INTRODUCTION TO AUDIOLOGY**

Discussion of acoustics and the psychoacoustic human processes. Emphasis on the review of the different types and degrees of auditory loss as well as its effect in linguistic development and academic learning. Includes practical experience in the administration of auditory evaluations of children and adolescents.

3 credits

**SPTH 2023 CLINICAL AND ADMINISTRATIVE PROCEDURES IN THE SPEECH AND LANGUAGE THERAPY PROFESSION**

Discussion of the main functions that speech and language therapists perform as established t in the law that regulates the practice of professionals of Speech and Language Therapy, Speech Pathology, and Language and Audiology in Puerto Rico. Emphasis on the functions related to early identification, evaluation procedures, service documentation, therapeutic planning, the maintenance of files and orientation to parents, as part of the basic functions of the speech and language therapist.

3 credits

### **SPTH THE 2024 USE OF TECHNOLOGY IN THE PRACTICE OF SPEECH AND LANGUAGE THERAPY**

Use of computer application programs and their use in the administrative and clinical tasks that speech and language therapists perform. Includes the review of commercial computer programs and their adaptation to the particular needs of clients or patients.

3 credits

### **SPTH 3000 DEVELOPMENT OF SPEECH: NORMAL AND PATHOLOGICAL PROCESSES**

Study of normal and pathological phonetic development in children. Emphasis on the functions of the oral mechanism in the production of phonemes and the linguistic aspects that influence in the phonological processes. Discussion of the most common therapeutic approaches used in intervention with children and adolescents. Includes observation experiences and evaluation of verbalization practices of children. Prerequisites: SPTH 2020, 2021.

3 credits

### **SPTH 3010 FLUENCY DISORDERS IN CHILDREN**

Identification of fluency disorders in children and adolescents. Includes the review of different theories on fluency disorders, as well as their characteristics. Presentation of intervention strategies for correction and dealing with such disorders. Includes observations in therapeutic interventions with children with fluency disorders. Prerequisite: SPTH 2021.

3 credits

### **SPTH 3015 VOICE DISORDERS IN CHILDREN**

Discussion of voice disorders in children and adolescents with emphasis on evaluation and treatment of such disorders. Observation of children and adolescents with auditory loss is required. Prerequisites: SPTH 2020, 2021, 2022.

3 credits

### **SPTH 3020 IDENTIFICATION AND TREATMENT OF CHILDREN WITH ORAL LANGUAGE DISORDERS**

Analysis of understanding and production problems of oral language in children. Intervention strategies with children with oral language disorders are reviewed. Includes observations of therapeutic interventions with children with oral language disorders. Prerequisite: SPTH 2021.

3 credits

### **SPTH 3021 IDENTIFICATION AND TREATMENT OF CHILDREN WITH WRITTEN LANGUAGE DISORDERS**

Analysis of the problems of understanding and formulation of written language in children. Review of the most common intervention strategies used with children with written language disorders. Observations in therapeutic interventions with children with written language disorders are required. Prerequisite: SPTH 2021.

3 credits

### **SPTH 3110 CLEFT PALATE AND CRANIOFACIAL ANOMALIES**

Analysis of the communication disorders associated with cleft palate and other craniofacial anomalies. Discussion of the different approaches to therapeutic intervention in speech and language with children and adolescents with such diagnoses. Emphasis on the procedures of communication evaluation in infants, pre-school and school age children. Requires observations of therapy of a child with this diagnosis. Prerequisites: SPTH 3000, 3010, 3015.

3 credits

### **SPTH 3120 INTERVENTION WITH CHILDREN WITH HEARING IMPAIRMENTS**

Discussion and analysis of intervention strategies and clinical procedures used in speech and language therapy with children and adolescents with auditory loss. Includes observations in speech and language therapy sessions of children and adolescents with auditory loss. Prerequisites: SPTH 2020, 2022.

3 credits

**SPTH 3130 PSYCHO-SOCIAL AND COGNITIVE CONDITIONS ASSOCIATED WITH SPEECH AND LANGUAGE PROBLEMS**

Study of communication disorders associated with mental retardation, learning problems, deficit of attention, selective muteness, sociocultural deficiency, autism and bilingualism. Discussion of therapeutic methods of intervention in speech and language with children and adolescents with such diagnoses. Observations of a speech therapy session with a child with one of the conditions studied in the course are required. Prerequisite: SPTH 2021.

3 credits

**SPTH 3140 EARLY INTERVENTION**

Analysis of communication development during the first two years of life. Emphasis on the indicators of communication delay in infants and the strategies of stimulation and early intervention with this population. Observations and evaluation of infants in care centers are required. Prerequisite: SPTH 2021.

3 credits

**SPTH 4110 AUGMENTATIVE AND ALTERNATE AID FOR COMMUNICATION IN CHILDREN**

Discussion of the benefits of alternate and augmentative aid that facilitate communications in children and adolescents with disorders. Emphasis on adaptation, the design of equipment and the technological assistance materials that will be used with children and adolescents with communication disorders. Observations and use of different technologies are required.

3 credits

**SPTH 4120 SIGN LANGUAGE**

Study of sign language. Theoretical and practical analysis of this. Emphasis on manual communication systems, on the techniques of nonverbal communication, on the American Sign Language (ASL) and the recognition of non verbalized expression by means of sign language.

3 credits

**SPTH 4130 TREATMENT OF CHILDREN WITH SEVERE CONDITIONS**

Application of the necessary clinical skills for intervention with children and adolescents with severe disorders. Emphasis on the development of the functional communication skills of THL related to this population. Prerequisites: SPTH 2021, 3000.

3 credits

**SPTH 4135 DYSPHAGIA IN CHILDREN**

Analysis of the aspects related to intervention with children with feeding and swallowed disorders. Discussion of the phases in the feeding process, swallowing problem indicators and the recommended exercises to work with the problems in the oral and pharyngeal phases. Prerequisite: SPTH 2020.

3 credits

**SPTH 4140 CONTEMPORARY TOPICS IN SPEECH AND LANGUAGE THERAPY**

Discussion of current topics related to the nature, identification and therapeutic approaches to children and adolescents with speech and language disorders. Includes the review and discussion of articles of professional magazines and scientific literature related to research in the field.

3 credits

**SPTH 4912 CLINICAL PRACTICUM I**

Practical experience designed on the application of evaluation skills and treatment of children and adolescents with speech and language disorders. Requires the completion of a minimum of 40 hours of supervised practice in a clinical scenario, five hours of meetings with the professor, the approval of the course with a minimum grade of B and compliance with all requirements established in the Practice Manual.

3 credits

**SPTH 4913 CLINICAL PRACTICUM II**

Practical experience designed on the application of the skills acquired in Clinical Practice I. Requires the completion of a minimum of 70 hours of supervised practice in two different clinical scenarios, 35 hours in each

clinical scenario and 5 hours of meetings with the professor, the approval of the course with a minimum grade of B and compliance with all the requirements established in the Practice Manual. Prerequisite: SPTH 4912.  
4 credits

## **Courses in Tourism (TURI)**

### **TURI 1020 FUNDAMENTALS OF TOURISM**

Basic concepts and general areas in tourism as one of the important components of a country's development. The importance of tourism to the local and world economy. The characteristics of Puerto Rico for development of this industry. The socioeconomic impact of tourism.  
3 credits

### **TURI 1030 DATA PROCESSING IN HOTELS**

Organization and operation of travel agencies. Preparing itineraries, reservations and excursions. Applying rates and filling out documentation.  
2 credits

### **TURI 1040 FIRST AID**

Training in first aid and medical emergency techniques in hotels and open areas.  
1 credit

### **TURI 1050 TOURISM GUIDE**

Functions and responsibilities of a guide. Types of guides. Requirements to practice the profession. Handling maps for designing and reading routes. Professional ethics and psychological factors that affect groups.  
3 credits

### **TURI 1200 TOURIST QUALITY AND SERVICES**

Development of the skills necessary to achieve client satisfaction in all areas of quality of service and to obtain the mutual benefits of tourism to the company, the residents and the visitors. Analysis of the challenges that the tourism industry has to anticipate the needs of the visitors and exceeding their expectations with good quality services to stay competitive.  
3 credits

### **TURI 1900 HOTEL MANAGEMENT**

Study of the hotels and hotel management. Location and construction of hotels, hotel indicators, minimum occupancy, prospecting and viability. Study of the operational structure. Establishing chains of command and interdepartmental relationships. Prerequisites: TURI 1020, ACCT 1161, BADM 1900.  
3 credits

### **TURI 2000 LAWS AND TOURISM**

The most important laws and regulations in the tourism field in Puerto Rico. Knowledge of the legal organization of tourism in the country. Laws and regulations in the federal jurisdiction of the United States applicable to Puerto Rico and international organism regulations that in some way influence tourism. Prerequisites: TURI 1020.  
3 credits

### **TURI 2010 RECEPTION DEPARTMENT**

Systematic focus on procedures in a hotel reception office. Includes the complete process from reservations to checkout and billing. Review of management elements to achieve effectiveness, planning and evaluating performance and human resources within a general operational context of a hotel.  
2 credits

### **TURI 2020 TOURISM AND GEOGRAPHY IN PUERTO RICO**

History of the development of tourism in Puerto Rico. Places of tourist interest on the Island. Geography and topography of Puerto Rico and its main characteristics. Puerto Rican flora and fauna. Includes an open lab. Prerequisites: GEHS 2010.  
3 credits

**TURI 2030 INTERCULTURAL COMMUNICATION**

Verbal and non-verbal communication as they influence perceptions, feelings, affections and actions of other people and cultures and the implications for tourism.

3 credits

**TURI 2040 TOUR PLANNING AND DEVELOPMENT**

Characteristics and methods for efficiently planning tourist excursions. Evaluation of tourist areas, preparing excursions, determining rates, preparing itineraries and reservations. Emphasis on the relationship among tourists, travel agencies, hotels and transportation services.

3 credits

**TURI 2050 WORLD GEOGRAPHY AND TOURISM**

Principal world tourist destinations and their historical, geographical, human, economic and tourist diversity.

3 credits

**TURI 2060 TOURIST MARKETING**

Review of the concepts and application of marketing, principles and strategies directed towards tourism and hotel services. Analysis of the principles of traveler conduct, market study, prices, promotion, distribution and services.

3 credits

**TURI 2200 CULTURE AND TOURIST DESTINATIONS OF PUERTO RICO**

Study of the main tourist destinations of Puerto Rico, with emphasis on their culture, activities, history and tourist development. Study of touristic attractions, as well as the social behavior that makes these destinations prosperous. Those destinations that by tradition have not been developed, but which have the potential of tourism development will be discussed.

3 credits

**TURI 2400 HOUSEKEEPING MANAGEMENT**

Systematic focus and management of room operations in a hotel and its public areas. The different operation areas, management of inventory, control of costs and management of human resources. Prerequisite: BADM 2250.

3 credits

**TURI 2600 PHYSICAL FACILITIES MANAGEMENT**

Principles and basic concepts for management of buildings and land in hotels and restaurants to effectively work with engineering and maintenance departments. Structural aspects, services, waste reduction and cost control.

3 credits

**TURI 2910 INTERNSHIP TOURIST ADMINISTRATIVE ASSISTANT**

Learning experiences for the specialization of Tourist Administrative Assistant in a center approved by the faculty for the practice of acquired theories, concepts and skills. Requires one hundred and fifty (150) hours of practice and fifteen (15) hours of seminar for a total of one hundred sixty-five (165) hours. Prerequisite: Authorization from the Director of the Department.

3 credits

**TURI 2913 INTERNSHIP TOURISM GUIDE**

Learning experiences for the specialization of Tourist Guide in a center approved by the faculty for the practice of acquired theories, concepts and skills. Requires one hundred and fifty (150) hours of practice and fifteen (15) hours of seminar for a total of one hundred sixty-five (165) hours. Prerequisite: Authorization from the Director of the Department.

3 credits

**TURI 3000 TOURISM PLANNING**

Integrated study of planning, emphasizing basic system concepts, decision-making, resource analysis techniques, tourism programs and services including the preparation of plans. Analysis of the functions of the planning process applied to the field of tourism.

3 credits

**TURI 3010 ECOTOURISM AND SUSTAINABLE TOURISM**

Analysis of the importance of the good management of the environmental, economic and sociocultural resources of a tourist destination. Study of sustainable tourism and its relation to planning a development based on improving the quality of life of the population, the experience of the visitor, the conservation of the environment and the achievement of higher levels of economic prosperity for the residents of the area, through the tourist activity.

3 credits

**TURI 3100 INFORMATION SYSTEMS**

Importance of the available information systems and their application. Planning expenses, projections, tourist resource inventories and strategies used by competitors to reach their customers. Prerequisites: TURI 3000, MAEC 2221, MKTG 1210.

3 credits

**TURI 3200 HUMAN RESOURCES MANAGEMENT IN THE HOTEL INDUSTRY**

Analysis of the effectiveness of the regulations and related practices with personnel through conferences, discussions and case studies. Emphasis on hiring, selection, assignment and development of human resources. Emphasis on the study of practices related to personnel in the hotel industry. Prerequisites: TURI 2400, BADM 1900.

3 credits

**TURI 3210 PLANNING AND TOURIST DEVELOPMENT**

Survey of the factors that determine the success of a tourist destination as they relate to the planning and policies for the development of a country. Analysis of the planning process from its objectives to implementation. Evaluation of the importance of the architectonic design and the cultural patrimony in tourist facilities.

3 credits

**TURI 3220 TRIP RESERVATION SYSTEM**

Analysis of the basic concepts of the use of computerized reservation systems for tourism agencies. Reservations for methods of transportation, lodging, restaurants and other touristic services. Quotes, creation and emission of travel documents such as: tickets, vouchers and others.

3 credits

**TURI 3230 ACCOMMODATIONS DEPARTMENT ADMINISTRATION**

Integrated study of the accommodations department consisting of the reserve-reception areas, concierge, housekeeping, engineering and maintenance. Description of key concepts of this department, as well as the use of simulated and practical systems for student development in this area. Requires 45 hours of lecture-lab. Prerequisite: BADM 2250.

3 credits

**TURI 3300 FOOD AND SERVICES MANAGEMENT**

Importance of food management and control of material supplies and services. Development of a continuous plan for determining standards, operational budgets, analysis and control of costs, labor expenses, volume and profits, income and price calculations.

3 credits

**TURI 3400 MEETINGS AND CONVENTION MANAGEMENT**

Sales process and servicing the meetings market. Identification and study of the segments that form this market. Analysis of effective sales techniques for these segments. Planning and developing different types of services for conventions and meetings. Prerequisites: HMGMT 1060, 2010, 2400.

3 credits

**TURI 3500 INFORMATION SYSTEMS IN THE HOTEL INDUSTRY**

Fundamental aspects of computerized systems and management of hotel information systems. Application of the computer to food, beverages, purchasing, sales and accounting. Prerequisite: TURI 1900.

3 credits

**TURI 4303 FOOD AND BEVERAGE MANAGEMENT III**

Different types of foods and beverages. Application of concepts of food and beverage preparation and service. Analysis and control of total costs in planning and serving food and beverages. Requires 30 hours of lecture and 45 hours of lab. Prerequisite: TURI 3302.

3 credits

**TURI 4400 ADMINISTRATION AND ORGANIZATION OF GROUPS AND CONVENTIONS**

Analysis of the meetings and conventions industry, concentrating on the practical study, planning, supervision and control guides used by planners of professional events. Discussion of the organization, preparation and operation of conventions, exhibitions and events. Emphasis on the ways and methods of sales used in the reserve of convention groups and events, as well as the distribution of administrative responsibilities in the operation.

3 credits

**TURI 4910 INTERNSHIP IN TOURISM ADMINISTRATION**

Learning experiences in a real scenario for the specialization of tourism administration in a center approved by the faculty for the practice of the theories, concepts and acquired skills. Requires three hundred (300) hours of internship in the practice center. Prerequisite: Authorization of the Director of the Department or the Program Coordinator.

3 credits

**TURI 4915 INTERNSHIP**

Practice theories and learned concepts in a real setting. Work experiences supervised in the field of management of lodging facilities and under the supervision of a faculty member. The student is required to devote at least 15 hours to lectures and 90 hours to the practice center to complete the assigned work. Course must be taken the last academic term. Prerequisite: prior approval of the Department Director.

3 credits

## Faculty of the University

### Central Office Administrators with Faculty Rank

- BOSCIO VARGAS, AMAURY F., Catedrático Auxiliar. Vicepresidente Auxiliar de Investigación Académica y Recursos Externos. B.A. Universidad de Puerto Rico, M.A.T., Montclair State College.
- CABRERA COLLAZO, RAFAEL L., Catedrático de Historia. Vicepresidente Asociado de Asuntos Académicos. B.A., M.A., Ph.D. Universidad de Puerto Rico.
- COLÓN ORELLANO, MAGGIE, Instructora. Directora Ejecutiva de Recursos Humanos. B.A., M.B.A. Universidad Interamericana de Puerto Rico.
- DE HOYOS BALASQUIDE, CELESTINO, Catedrático Auxiliar de Finanzas. Director Institucional del Programa de Servicios para Estudiantes Adultos (AVANCE), Certificados Técnicos y Programa de Educación Continua. B.B.A. Universidad Central de Bayamón, M.B.A. Universidad Interamericana de Puerto Rico.
- DE LAS CASAS GIL, ANTONIO, Catedrático Asociado de Física. Vicepresidente Auxiliar de Aprendizaje a Distancia. M.A. Universidad de Zaragoza, España.
- DOMÍNGUEZ RODRÍGUEZ, NORBERTO, Catedrático Auxiliar. Vicepresidente de Asuntos Religiosos. B.A. Universidad de Puerto Rico; M.Div. Seminario Evangélico de Puerto Rico.
- ECHEVARRÍA SANTIAGO, AGUSTÍN, Catedrático. Vicepresidente de Asuntos Académicos, Estudiantiles y Planificación Sistémica. B.A., J.D. Pontificia Universidad Católica de Puerto Rico.
- FERNÓS LÓPEZ-CEPERO, MANUEL J., Catedrático. Presidente de la Universidad. B.B.A., J.D. Universidad de Puerto Rico; LL.M. New York University.
- GONZÁLEZ PÉREZ, YOÍSA, Instructora. Directora Institucional de Planificación, Información Académica y de Investigación. B.A., M.P.L., Universidad de Puerto Rico.
- JIMÉNEZ MENÉNDEZ, TOMÁS M., Catedrático de Filosofía. Director Ejecutivo de la Oficina del Presidente. B.A., M.A. Universidad de Puerto Rico.
- ORTIZ APONTE, MARITZA, Catedrática de Educación. Directora Institucional de Acreditación y Licencias. B.A. Universidad de Puerto Rico; M.B.A., Ed.D. Universidad Interamericana de Puerto Rico.
- RAMÍREZ TORO, GRACIELA, Catedrática de Biología. Directora del Centro de Educación, Conservación e Interpretación Ambiental. M.A. Hood College; Ph.D. Drexel University.
- RIVERA CLAUDIO, NÉLIDA, Catedrática Auxiliar de Gerencia. Directora del Centro para el Desarrollo Profesional y Eventos Especiales. B.B.A. Universidad de Puerto Rico; M.B.A., Ed.D. Universidad Interamericana de Puerto Rico.
- RIVERA GONZÁLEZ, ANTHONY, Catedrático Asociado de Ciencias Políticas e Historia. Director Institucional de Asuntos Curriculares. B.A. Universidad de Puerto Rico; M.A. Bowling Green State University; Ed.D. Universidad del Turabo.
- RIVERA OCASIO, FREDESWINDA, Instructora. Directora Institucional de Recursos Externos y Administradora de la Junta de Revisión Institucional. B.S., Universidad Interamericana de Puerto Rico; M.B.A. Universidad de Puerto Rico, Recinto de Río Piedras.
- SARRIERA OLIVERA, CARMEN M., Catedrática Asociada de Español. Directora Ejecutiva del Consejo Universitario. B.A. Universidad del Sagrado Corazón; M.A. University of Washington.
- SCALLEY TORRES, ELIZABETH, Catedrática de Ciencias Sociales. Directora Ejecutiva de la Oficina de Monitoría, Evaluación e Investigación Sistémica. B.A., M.A. Universidad de Puerto Rico; Ph.D. Fordham University.
- WOOLCOCK RODRÍGUEZ, KAREN, Catedrática de Biología. Directora Institucional de la Oficina de Avalúo de Servicios Estudiantiles. B.S., M.S., Ph.D. Universidad de Puerto Rico.

## **Faculty Affiliated with Other Institutions**

(Faculty with academic Rank in other institutions that teach and assign grades to Inter American University students.)

### **Army ROTC Program University of Puerto Rico, Mayagüez Campus**

#### **Programa del ROTC del Ejército Universidad de Puerto Rico, Mayagüez**

CHICO, FÉLIX, Supervisor e Instructor de Inglés. M.A. Universidad de Puerto Rico.

DELGADO, JOSE A., MSG, Senior Drill Instructor.

DE SANTIAGO, JOSÉ E., Mayor, Catedrático Auxiliar de Ciencias Militares. M.S., Universidad de Puerto Rico.

PEREZ, DAVID, Capitán, Catedrático Auxiliar de Ciencias Militares. M.A., Webster University, Missouri.

PÉREZ LOURDES, Instructora de Inglés. B.A., M.A.Ed. Universidad de Puerto Rico.

RAMÍREZ, ROBEL Teniente Coronel, Catedrático de Ciencias Militares, M.A., Webster University, Missouri.

REYES, ISRAEL, Teniente Coronel. Catedrático Auxiliar de Ciencias Militares. B.S., Kansas State University; M.S. North Carolina State University.

RODRÍGUEZ, WILLIAM, Capitán, Catedrático Auxiliar de Ciencias Militares. B.S., Pontificio Universidad Católica de Puerto Rico.

ZAPATA, ALFREDO, J., Mayor, Catedrático Auxiliar de Ciencias Militares. M.B.A., Caribbean University, Ponce.

### **Airforce ROTC Program University of Puerto Rico, Mayagüez Campus Department of Aeroespacial Studies**

GHERARDY, JUAN G., Capitán, Instructor de Estudios Aeroespaciales, B.A. University of Texas.

RODRÍGUEZ, GLORIMAR G., Capitán, Instructora de Estudios Aeroespaciales, M.B.A. Nichols College of Massachusetts.

TORAÑO, FRANCISCO A., Teniente Coronel, Instructor de Estudios Aeroespaciales, M.B.A. en Aviación, Universidad Ambry Riddle.

### **Airforce ROTC Program University of Puerto Rico, Río Piedras Campus Department of Aeroespacial Studies**

CINTRÓN GARCÍA, JOSÉ M., Teniente Coronel, Catedrático Auxiliar de Estudios Aeroespaciales. B.A. Universidad de Puerto Rico; M.A. Troy State University; J.D. Universidad Interamericana de Puerto Rico

REYES BENÍTEZ, RAMSAMOOJ J., Capitán, Instructor de Estudios Aeroespaciales. B.S., M.T. (ASCP) Universidad de Puerto Rico

ROTGER FELICIANO, LUIS A., Primer Teniente, Instructor de Estudios Aeroespaciales. B.S. Wayland Baptist University.

## Faculty of the Campuses

### Faculty Aguadilla Campus

ACEVEDO CASTILLO, NANCY, Catedrática Auxiliar de Administración de Empresas. B.S., M.B.A. Universidad de Puerto Rico.

AGÉSILAS, ELIE A. Catedrático. B.A. Universidad de las Antillas, M.A. Universidad Interamericana de Puerto Rico, Ph.D. University of Tennessee.

AGÉSILAS, MARIE J., Catedrática Asociada de Inglés. B.A. Universidad de las Antillas; M.A. University of Tennessee; Ph.D. Andrews University.

ALICES VILLANUEVA, HARRY, Catedrático Asociado de Química. B.S., M.S. Universidad de Puerto Rico, Ph.D. University of Hawaii.

AQUINO CRUZ, IRIS N., Catedrática Auxiliar de Psicología. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ph.D. Pontificia Universidad Católica de Puerto Rico.

ARROYO DE VAN DERDYS, EVA, Catedrática Asociada de Biología. B.S., M.S. Universidad de Puerto Rico.

BADILLO GRAJALES, RICARDO, Catedrático Auxiliar de Justicia Criminal. B.A., M.A. Universidad Interamericana de Puerto Rico.

BETANCOURT LLAMBÍAS, MARÍA, Catedrática de Educación Física. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ph.D. University of Iowa.

BOSQUES FERNÁNDEZ, MARÍA L., Catedrática Auxiliar de Biología. M.S. Universidad de Puerto Rico.

CALDERÓN MÉNDEZ, HELMUTH, Catedrático Auxiliar de Matemáticas. M.S. Universidad de Santiago de Chile.

CARABALLO RIVERA, JOSÉ E., Catedrático Asociado de Mercadeo. B.A., M.B.A. Universidad Interamericana de Puerto Rico; D.B.A. Argosy University.

CASTRO GRACIA, JAIME, Catedrático de Educación. B.A., M.Ed. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

CORTÉS HERNÁNDEZ, MIGUEL, Catedrático Asociado de Ciencias de Computadoras. M.S. Universidad Nacional de Colombia.

CUBA VILLANUEVA, EDDA, Catedrática de Religión. B.A. Universidad Interamericana de Puerto Rico; Maestría en Divinidad, Seminario Evangélico de Puerto Rico; D.Min. McCormick Theological Seminary.

DELGADO HERNÁNDEZ, ANA, Catedrática Auxiliar de Enfermería. B.S. Universidad de Puerto Rico; M.S.N. Pontificia Universidad Católica de Puerto Rico.

FRAU ORTEGA, ROCIO I., Catedrática Asociada de Educación. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ed.D. Universidad de Puerto Rico.

GERALDINO PÉREZ, ARACELIS, Instructora de Matemáticas. B.S.E.E. Universidad Autónoma de Santo Domingo.

GONZÁLEZ DELIZ, LIGIA, Catedrática Auxiliar de Administración de Empresas. B.S., M.B.A. Universidad de Puerto Rico.

GONZÁLEZ PÉREZ ELIDINE, Catedrática Auxiliar de Administración de Sistemas de Oficina. B.A. Universidad de Puerto Rico; M.A. New York University.

GONZÁLEZ RIVERA, ROSA, Catedrática Asociada de Matemáticas. B.A., M.Ed. Universidad de Puerto Rico.

GONZÁLEZ ROMERO, YESENIA, Instructora de Radiología. B.S., M.A. Universidad Interamericana de Puerto Rico.

GUILLAMA DE LEÓN, MARISA, Catedrática de Mercadeo. B.B.A., M.A. Universidad de Puerto Rico; Ph. D. Florida International University.

HERNÁNDEZ MACHADO, MABEL T., Catedrática Asociada de Farmacia. B.S. Universidad de Puerto Rico.

HERNÁNDEZ PÉREZ, JORGE IVÁN, Catedrático Auxiliar de Justicia Criminal. B.A., M.A. Universidad Interamericana de Puerto Rico.

HERRERA SOTO, EDITH T., Catedrática Asociada de Educación. B.A. Universidad Interamericana de Puerto Rico; M.S. Universidad de Puerto Rico.

JUSINO CANCEL, FRANCISCO, Catedrático Auxiliar de Historia. B.A. University of Alabama; M.A. University of Toledo.

LÓPEZ BAYRÓN, JUAN L., Catedrático Asociado de Biología. B.S., M.S. Universidad de Puerto Rico.

LÓPEZ SÁNCHEZ, CÉSAR, Catedrático Auxiliar de Religión. B.A. Antillian College; M.A. Princeton Theological Seminary; J.D. Facultad de Derecho Eugenio María de Hostos.

LÓPEZ VIGO, GERARDO, Catedrático Auxiliar de Religión. B.A. Universidad de Puerto Rico; M.T. Seminario Evangélico de Puerto Rico.

LUGO DE SÁNCHEZ, ILEANA N., Catedrática Asociada de Gerencia de Hoteles. B.A. Universidad de Puerto Rico; M.A. University of North Carolina at Greensboro; Ph.D. Virginia Polytechnic Institute and State University.

LUGO IRIZARRY, NORMA, Catedrática Asociada de Educación. B.A. Universidad de Puerto Rico; M.A. Pontificia Universidad Católica de Puerto Rico; Ed.D. Nova University.

MANGUAL RAMOS, MABEL, Catedrática Asociada de Español. B.A. Universidad de Puerto Rico; M.A. Middlebury College.

MAUROSA CRUZ, NÉRIDA, Instructora de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico; Ed.D., Universidad Interamericana de Puerto Rico.

MEJÍAS FELICIANO, ESPERANZA, Catedrática Auxiliar de Enfermería. B.A., M.S.N. Pontificia Universidad Católica de Puerto Rico.

MÉNDEZ CASTRO, ELSIE, Catedrática Asociada de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico.

MENDOZA BORGES, SONIA M., Catedrática Asociada de Español. B.A., M.A. Universidad de Puerto Rico.

MERCADO ROSA, ROSA M., Catedrática Auxiliar de Enfermería. B.S.N., M.P.H. Universidad de Puerto Rico.

MONTES RAMOS, WINETTE, Catedrática de Educación. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ph.D. The Pennsylvania State University.

NAVARRO FIGUEROA, JOSÉ, Catedrático Asociado de Ingeniería Electrónica. B.S., M.S. Universidad de Puerto Rico.

NAZARIO GARCÍA, HAYMEÉ, Catedrática de Psicología. B.A. Universidad Interamericana de Puerto Rico; M.S., Ph.D. Centro Caribeño de Estudios Postgraduados.

NEGRÓN FELICIANO, CARMEN, Catedrática Asociada de Administración de Sistemas de Oficina. B.S. Universidad de Puerto Rico; M.A. New York University.

NIEVES MÉNDEZ, ANTONIO, Catedrático de Historia. B.A. Universidad Interamericana de Puerto Rico; M.A., Ph.D. Centro de Estudios Avanzados de Puerto Rico y el Caribe.

OCASIO SANTOS, YANES, Catedrática Asociada de Español. B.A., M.A. Universidad de Puerto Rico.

OLAVARRÍA SOTO, LOURDES, Catedrática Asociada de Enfermería. B.S. Arecibo University College; M.S., Ph.D. Pontificia Universidad Católica de Puerto Rico.

ORTEGA TEJADA, ERICK, Catedrático Auxiliar de Biología. B.S., M.S. Universidad de Puerto Rico.

OTAOLA EGUÍA, JOSÉ R., Catedrático Asociado de Biología. B.S., M.S. Universidad de Puerto Rico.; Ph.D. Capella University.

PAGÁN GÓMEZ, MARITZA, Catedrática Asociada de Administración de Empresas. B.A., M.B.A. Universidad Interamericana de Puerto Rico; D.B.A. Argosy University.

PEÑA ÁLVAREZ, JOSEFINA, Catedrática de Química. M.A. Universidad de Chile; Doctor en Ciencias, Universidad de Concepción, Chile.

PERDOMO VALERIO, FLOILÁN, Catedrático Auxiliar de Biología. B.S. Universidad Madre y Maestra; M.S. Universidad de Puerto Rico.

PÉREZ CRUZ, ANA M., Catedrática Asociada de Educación Especial. B.A., M.A., Ed.D. Universidad Interamericana de Puerto Rico.

QUEVEDO DE PEÑA, DORALBA, Catedrática Asociada de Educación. B.A. Universidad Pedagógica Nacional; M.A. Universidad Interamericana de Puerto Rico.

RAMOS RIVERA, MINERVA, Catedrática Asociada de Trabajo Social. B.A., M.S.W. Universidad de Puerto Rico.

RIVERA ARCE, MICHELLE Z., Instructora de Educación Especial. B.A. Universidad de Puerto Rico, M.A. Universidad Central de Bayamón.

RIVERA MARTÍNEZ, JAMES, Catedrático Auxiliar de Inglés. B.A., M.A. Universidad de Puerto Rico

RIVERA MONTALVO, REY, Catedrático Auxiliar de Historia. B.A. Universidad Interamericana de Puerto Rico; M.A. Universidad de Puerto Rico.

RIVERA RODRIGUEZ, JAPHET, Catedrático Auxiliar de Gerencia de Hoteles. B.A. Universidad de Puerto Rico; M.S. Florida International University.

ROMÁN FERRER, NILSA M., Catedrática Asociada, B.A., M.B.A. Universidad Interamericana de Puerto Rico.

ROMÁN SILVA, ARIS A., Catedrática de Administración de Empresas. B.A., M.B.A., Ph.D. Universidad de Puerto Rico.

ROQUE MIRANDA, PEDRO L., Catedrático Auxiliar de Administración de Empresas. B.B.A., M.B.A. Universidad Interamericana de Puerto Rico.

ROSA ROSARIO, MARÍA G., Catedrática Asociada de Administración de Sistemas de Oficina. B.A. Universidad de Puerto Rico; M.A. New York University; D.B.A. Argosy University.

ROSA ROSARIO, RAMONA, Catedrática Asociada de Música. B.A. Universidad de Puerto Rico; M.A. New York University.

ROSAS HERNÁNDEZ, HERMÁN, Catedrático Auxiliar de Contabilidad. B.S. Universidad de Puerto Rico; M.B.A. Pace University.

RUIZ ARCE, RAÚL, Catedrático Auxiliar de Inglés. B.A., M.A. Universidad Interamericana de Puerto Rico.

RUIZ CRUZ, CARLOS A., Instructor de Trabajo Social. B.A. Universidad Interamericana de Puerto Rico, M.S.W. University of Connecticut.

RUIZ MONTES, MAGDA E., Catedrática Auxiliar de Administración de Sistemas de Oficina. B.A. Universidad de Puerto Rico; M.A. New York University.

RUIZ OCASIO, GRICEL, Catedrática Auxiliar de Biotecnología. B.S. Universidad de Puerto Rico; M.S. University of Central Florida.

RUIZ SANTIAGO, WANDA, Instructora de Enfermería. B.S. Universidad de Puerto Rico; M.S. Pontificia Universidad Católica de Puerto Rico.

RUSCALLEDA BERCEDÓNIZ, ISABEL, Catedrática Asociada de Español. B.A., M.A. Universidad de Puerto Rico; Doctora en Letras, Universidad Nacional Autónoma de México.

SOLÓRZANO HERNÁNDEZ, JOSÉ, Catedrático Auxiliar de Electrónica. B.S.E.E. Universidad Centroamericana José Simeón Cañas de El Salvador; M.S.E.E. Universidad de Puerto Rico.

SOTO FALTO, TERESITA, Catedrática Asociada de Español. B.A., M.A. Universidad de Puerto Rico.

SOTO RAMÍREZ, JESSICA, Catedrática Auxiliar de Español. B.A., M.A. Universidad de Puerto Rico.

SOTOMAYOR MIRANDA, GUADALUPE, Catedrática Asociada de Inglés. B.A. Universidad Interamericana de Puerto Rico; M.Ed. University of Hartford.

TORRES LEON, FÉLIX, Profesor Emérito. B.A., Universidad Interamericana de Puerto Rico, M.A. New York University.

TORRES TORRES, MYRNA, Catedrática Asociada de Inglés. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

VALES MEDINA, ÁNGEL R., Catedrático Asociado de Matemáticas. B.A., M.Ed. Universidad de Puerto Rico. D.Ed. Universidad de Puerto Rico.

VARGAS COLÓN, FELIPE, Catedrático de Educación. Bachiller, Universidad Autónoma de México; M.A. Universidad Interamericana de Puerto Rico; M.A. New York University; Doctor en Pedagogía, Universidad Autónoma de México.

VARGAS MOYA, EDGARDO, Instructor de Computadora. B.S. Universidad de Puerto Rico, M.S. Universidad Interamericana de Puerto Rico.

VEGA RODRÍGUEZ, LOURDES E., Catedrática Auxiliar de Contabilidad. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico.

VÉLEZ ACEVEDO, JORGE, Catedrático Auxiliar de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico.

VÉLEZ TORO, MARCOS, Catedrático Auxiliar de Salud y Educación Física. B.A., M.A. Universidad Interamericana de Puerto Rico.

## **Faculty Arecibo Campus**

AGUILAR TOLEDO, VILMA E., Catedrática Auxiliar de Justicia Criminal. B.A., M.A. Universidad Interamericana de Puerto Rico.

AGUIRRE FRANCO, ILVIS, Catedrática Auxiliar de Administración de Sistemas de Oficina. B.A. Universidad de Puerto Rico; M.A. New York University.

ALBORS VÉLEZ, ESTHER, Catedrática Auxiliar de Inglés. B.A. Universidad de Puerto Rico; M.A. New York University.

ALICEA PADILLA, ARCADIO, Catedrático Auxiliar de Religión. B.A. Universidad Interamericana de Puerto Rico; M.A. Seminario Evangélico de Puerto Rico.

ÁLVAREZ AGUIRRE, AIDA, Catedrática Asociada de Gerencia y Mercadeo. B.B.A. Universidad de Puerto Rico; M.B.A., Universidad Interamericana de Puerto Rico.

BALSEIRO CHACÓN, WANDA, Catedrática Auxiliar de Español. B.A., M.A. Universidad de Puerto Rico.

BRAVO NÚÑEZ, ARNALDO, Catedrático Asociado de Química. M.S. Doctor en Ciencias, Universidad de Concepción, Chile.

CARDONA CARDONA, BLANCA, Catedrática Asociada de Gerencia y Contabilidad. B.B.A., M.B.A. Universidad de Puerto Rico.

CARDOZA BONET, MONSERRATE, Catedrática de Contabilidad. B.B.A. Universidad de Puerto Rico; M.B.A., Universidad Interamericana de Puerto Rico; Ph. D. Union Institute and University.

CARRIÓN PAGÁN, LOURDES, Catedrática de Trabajo Social. B.A., M.A., Ph.D. Universidad de Puerto Rico.

CONCEPCIÓN SANTIAGO, VÍCTOR MANUEL, Catedrático de Educación. B.A. Universidad de Puerto Rico; M.A., Ed. D. Universidad Interamericana de Puerto Rico.

CORCHADO ROBLES, BRENDA, Instructora de Español. B.A., M.A., Ph. D. Universidad de Puerto Rico.

CORDERO NIEVES, IRIS E., Catedrática de Educación. B.A., M.Ed. Universidad de Puerto Rico; Ed. D. Universidad Interamericana de Puerto Rico.

CORTÉS BELLO, FRANCES, Catedrática de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

CRUZ BALLESTEROS, LUIS E., Catedrático Asociado de Gerencia de Recursos Humanos. B.A. Universidad Nacional Federico Villarreal, Perú; M.P.A. Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico.

CRUZ CANDELARIA, LUZ, Instructora de Trabajo Social. B.A., M.S.W. Universidad de Puerto Rico.

CRUZ GONZÁLEZ, JEANETTE, Instructora de Inglés. B.A., M.A. Universidad de Puerto Rico.

CUEVAS CRUZ, RENÉ J., Catedrático de Historia. B.A. Universidad Interamericana de Puerto Rico; M.A., Ph.D. Universidad de Puerto Rico.

DASTAS MÉNDEZ, JAVIER, Catedrático Auxiliar de Computadoras. B.S., M.S. Universidad Interamericana de Puerto Rico.

DELGADO FERNÁNDEZ, MARÍA LEONOR, Catedrática Asociada de Inglés. B.A. Universidad de Puerto Rico; M.Ed. University of Hartford.

DELGADO PÉREZ, IVONNE, Catedrática Asociada de Administración de Empresas. M.B.A. Universidad de Puerto Rico; Ph.D. Universidad Interamericana de Puerto Rico.

DIEZ DE LOS REYES, RICARDO, Catedrático de Español. M.A. Hunter College of the City of New York; Ph.D. The Graduate Center, The City University of New York.

DONATE LÓPEZ, MILAGROS, Catedrática Auxiliar de Educación Física. B.S. Pontificia Universidad Católica de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

FERNÁNDEZ VALDÉS, IRMA, Instructora de Gerencia de Recursos Humanos. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

FERRAO DELGADO, LUIS O., Catedrático Auxiliar de Sociología. B.A. Universidad de Puerto Rico; M.S. Facultad Latinoamericana de Ciencias Sociales.

GARCÍA PÉREZ, DAMARIS, Catedrática Auxiliar de Administración de Sistemas de Oficina. B.A. Universidad de Puerto Rico; M.A. New York University.

GARCÍA ROSALY, LETICIA, Catedrática Asociada de Educación. B.A. Pontificia Universidad Católica de Puerto Rico; M.A., Ed.D. Universidad Interamericana de Puerto Rico.

GIL NAVEDO, VÍCTOR, Catedrático Auxiliar de Educación Física. B.A. Pontificia Universidad Católica de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

GONZÁLEZ GONZÁLEZ, JEAN MARIE, Catedrática de Inglés. B.A. Universidad de Puerto Rico; M.S. University of Bridgeport; Ed.D. Universidad Interamericana de Puerto Rico.

GONZÁLEZ TORRADO, RUBÉN A., Catedrático Auxiliar de Educación Física. B.A. Universidad Interamericana de Puerto Rico; M.S. Indiana University.

HERNÁNDEZ RODRÍGUEZ, CARMEN C., Catedrática Auxiliar de Enfermería. B.S. Universidad Interamericana de Puerto Rico; M.S.N. Universidad de Puerto Rico.

HORTA COLLADO, JUAN R., Catedrático de Español. B.A. Universidad de Puerto Rico; M.A. Centro de Estudios Avanzados de Puerto Rico y El Caribe; Ph.D. Arizona State University.

JÁUREGUI MORALES, GASTÓN A., Catedrático Asociado de Química. Ingeniero Civil de Industrias, Universidad Católica de Chile; Ph.D. University of Exeter.

JIMÉNEZ TORRES, ÁNGEL E., Catedrático Asociado de Matemáticas. B.A., M.S. Universidad de Puerto Rico.

JOVÉ MÉNDEZ, YOLANDA M., Catedrática Auxiliar de Biología. B.S., M.S. University of Massachusetts.

KAPLAN RUBIN, GERALD, Catedrático Asociado de Inglés. B.S., M.A. Universidad Interamericana de Puerto Rico.

MALDONADO RODRÍGUEZ, ELIZABETH, Instructora de Computadoras. B.S. Universidad de Puerto Rico; M.S. Universidad del Sagrado Corazón.

MARTÍNEZ DE BONNET, CARMEN ILIA, Catedrática de Educación. B.A., M.Ed. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

MARTINEZ GUEVARA, AURIS M., Catedrática de Educación. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ph.D. The Pennsylvania State University.

MARTÍNEZ RÍOS, CARMEN D., Catedrática de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

MÉNDEZ GONZÁLEZ, DORIS, Catedrática Auxiliar de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico.

MERCADO ESCOBAR, MÉRIDA C., Catedrática de Ecología. B.A. Universidad de Puerto Rico; Ph.D. University of North Carolina.

MERCADO MORA, MIGUEL A., Catedrático Asociado de Educación. B.A., M.S. Universidad de Puerto Rico.

MOLINA MOLINA, IVÁN, Instructor de Anestesia. B.A. Universidad Interamericana de Puerto Rico; M.S. Barry University.

NEGRÓN RIVERA, ELIEZER, Catedrático Asociado de Música. B.A. Universidad de Puerto Rico; M.A. New York University.

NIEVES ACEVEDO, ROSALÍA, Catedrática Auxiliar de Enfermería. B.S., M.S.N. Universidad de Puerto Rico.

OLIVER MONTALVO, EBIGALY, Catedrática Auxiliar de Computadoras y Gerencia de Recursos Humanos. B.B.A. Universidad de Puerto Rico, M.B.A. Universidad Interamericana de Puerto Rico.

OMS SANTANA, JUANITA, Catedrática Asociada de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico; M.S. Barry University.

ORTIZ JIMÉNEZ, CECILIA, Catedrática Auxiliar de Trabajo Social. B.A., M.S.W. Universidad de Puerto Rico.

ORTIZ TORRES, EDGARDO, Instructor de Computadora. B.S., M.B.A. Universidad Interamericana de Puerto Rico; M.S. Lehigh University.

PAGÁN ROMÁN, HÉCTOR, Catedrático Auxiliar de Matemáticas. B.A., M.S. Universidad de Puerto Rico.

PEÑA VARGAS, YOLANDA, Instructora de Computadoras. B.S. Universidad Interamericana de Puerto Rico; M.S. Universidad de Puerto Rico.

PÉREZ ARNAU, ROBERTO, Catedrático de Biología. B.S., M.S. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

PÉREZ QUIÑONES, FRANCISCO, Catedrático Auxiliar de Economía. B.A. M.B.A. Universidad Interamericana de Puerto Rico.

PÉREZ SAMOT, ARLYN, Catedrática Auxiliar de Biología. B.S., M.S. Universidad de Puerto Rico.

PUENTE ROLÓN, ALBERTO R., Catedrático Auxiliar de Biología., B.S, M.S. Universidad de Puerto Rico. Ph.D. Biología, Universidad de Puerto Rico

QUIÑONES SANTIAGO, ISRAEL, Catedrático Auxiliar de Matemáticas. B.A., M.Ed. Universidad de Puerto Rico.

RAMOS GANDÍA, NICOLÁS, Catedrático Asociado de Matemáticas. B.A., M.Ed. Universidad de Puerto Rico.

RAMOS GIRAU, JOSUÉ, Instructor de Anestesia. B.S.N., M.A. Universidad Interamericana de Puerto Rico.

RIPPE PALOMO, DELFÍN, Catedrático Asociado de Microbiología. B.A. Bellarmine College; Ph.D. University of Texas.

RIVERA GONZÁLEZ, ANTHONY, Catedrático Asociado de Ciencias Políticas e Historia. B.A. Universidad de Puerto Rico; M.A. Bowling Green State University; Ed.D. Universidad del Turabo.

RIVERA MEDINA, FÉLIX, Catedrático Auxiliar de Enfermería. B.S.N., M.S.N. Pontificia Universidad Católica de Puerto Rico.

RIVERA NIEVES, PEDRO, Catedrático Auxiliar de Educación Física. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

RODRÍGUEZ PÉREZ, RAMONITA, Catedrática Asociada en Psicología. B.A., M.A. Universidad de Puerto Rico.

RODRÍGUEZ SANTIAGO, JOSÉ F., Catedrático Auxiliar de Biología. B.S. Pontificia Universidad Católica de Puerto Rico; M.S. Universidad de Puerto Rico.

ROMÁN SOLER, GLADYS., Instructora de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico

ROMERO PÉREZ, LIZBETH, Catedrática Auxiliar, B.A. Universidad de Puerto Rico; Ph.D. University of Medicine and Dentistry of New Jersey

ROSADO SOTO, ANA, Catedrática Auxiliar de Enfermería. B.S.N. Universidad Interamericana de Puerto Rico; M.S.N. Universidad de Puerto Rico.

SÁNCHEZ DEL TORO, JOSÉ, Catedrático Asociado de Mercadeo. B.A., M.B.A. Universidad Interamericana de Puerto Rico.

SANTIAGO ÁLVAREZ, LUIS FRANCISCO, Catedrático Asociado de Historia. B.A. Universidad de Puerto Rico; M.A. Centro de Estudios Avanzados de Puerto Rico y del Caribe; Ph.D. Universidad Complutense de Madrid.

SANTIAGO BERRÍOS, JOSUÉ, Catedrático Asociado de Español. B.A. Universidad de Puerto Rico; M.Th. Seminario Evangélico de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ph.D. Centro Caribeño de Estudios Postgraduados.

SANTIAGO LÓPEZ, MARÍA DEL C., Catedrática Auxiliar de Administración de Sistemas de Oficina. B.A. Universidad de Puerto Rico; M.A. New York University.

SARMIENTO OTERO, LUIS C., Catedrático Auxiliar de Química. Químico Universidad Nacional de Colombia; M.S. Universidad de Puerto Rico.

SARRIERA OLIVERA, CARMEN, Catedrática Asociada de Español. B.A. Universidad del Sagrado Corazón; M.A. University of Washington.

SCHWEITZER VIVES, CYNTHIA, Catedrática Asociada de Inglés. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

SIERRA LÓPEZ, JOSÉ, Catedrático Asociado de Trabajo Social. B.A. Universidad de Puerto Rico; M.S.W.; Universidad Interamericana de Puerto Rico; Ph.D. Universidad de Puerto Rico.

SOTO PAREDES, MANUEL A., Catedrático Auxiliar de Inglés. Licenciado en Filosofía y Letras. Universidad de Granada, España.

SOTO RIVERA, VIRGINIA, Catedrática Asociada de Inglés. B.A., M.A. Universidad de Puerto Rico.

TORO FIGUEROA, ELBA, Catedrática Auxiliar de Contabilidad. B.B.A., Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico.

TORRES ROSARIO, MARIALDI, Instructora de Administración de Sistemas de Oficina. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

TRINIDAD HERNÁNDEZ, ÁNGEL, Catedrático de Religión. B.A. Saint John Vianney Seminary; M.A. Saint Vincent de Paul Regional Seminary; Ph.D. Graduate Theological Foundation.

VÁSQUEZ MOLL, VÍCTOR D., Catedrático de Química. Magister en Electroquímica, Universidad de Concepción; Ph.D. Universidad Nacional La Plata.

VÁZQUEZ BRENES, MAGDA, Catedrática Asociada de Educación Especial. B.A., M.S. Universidad de Puerto Rico.

VEGA RODRÍGUEZ, ANNETTE, Catedrática de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico. Ed. D. Universidad Interamericana de Puerto Rico.

VEGA RUÍZ, DIANA, Catedrática Asociada de Educación, B.A. Universidad Interamericana de Puerto Rico; MA.Ed. Universidad Sagrado Corazón; Ed. D. Universidad Interamericana de Puerto Rico.

VEGA SOTO, PEDRO, Catedrático Auxiliar de Justicia Criminal. B.A., M.A. Universidad Interamericana de Puerto Rico, Ph.D. Universidad Castilla de la Mancha, España.

VELÁZQUEZ BENJAMÍN, FRANCIÉ, Catedrático de Educación. B.S. Universidad de Puerto Rico; M.Ed., Ed.D. Universidad de Massachusetts.

VÉLEZ OTERO, MAGDA, Catedrática de Psicología. B.S. Universidad de Puerto Rico; Licenciatura en Filosofía y Letras, Doctor en Filosofía y Ciencias de la Educación, Universidad de Barcelona, España.

VÉLEZ SANTIAGO, BENJAMÍN, Catedrático de Educación. B.A., M.A., Ed.D. Universidad Interamericana de Puerto Rico.

WOOLCOCK RODRÍGUEZ, KAREN, Catedrática de Biología. B.S., M.S., Ph.D. Universidad de Puerto Rico.

## **Faculty Barranquitas Campus**

ÁLVAREZ SWIHART, PATRICIA, Catedrática Asociada de Inglés. B.A. Universidad de Puerto Rico, Recinto Universitario de Mayagüez; M.A., Ed.D. Universidad de Puerto Rico, Recinto de Río Piedras

AYALA MALDONADO, LYDIA E., Catedrática Auxiliar de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico.

BELTRÁN TORRES, WANDALIZ, Instructora de Enfermería. B.S.N. Universidad de Puerto Rico, Recinto de Ciencias Médicas. M.S.N. Universidad Sagrado Corazón.

BERRÍOS CINTRÓN, MARÍA DE L., Instructora de Tecnología Radiológica. A.S., B.S. Universidad Interamericana de Puerto Rico; M.S. Universidad de Granada.

CARRO ANZALOTTA, ANTONIO E., Catedrático Asociado de Biología. B.S., M.S. Universidad de Puerto Rico.

CARVAJAL JIMÉNEZ, CARMEN L., Catedrática Auxiliar de Computadoras. B.S. Universidad Industrial de Santander, Bucaramanga Colombia; M.S. Universidad de Puerto Rico, Recinto de Mayagüez

CINTRÓN SERRANO, FILOMENA, Catedrática Asociada de Español. B.A., M. A. Universidad de Puerto Rico. Ph.D. Centro de Estudios Avanzados de Puerto Rico y el Caribe.

COLÓN COLÓN, EDGARDO T., Catedrático Auxiliar de Economía. B.A., M.A., M.B.A. Universidad Interamericana de Puerto Rico.

COLÓN RIVERA, DAMARIS, Catedrática Auxiliar de Enfermería. B.S.N. Universidad Interamericana de Puerto Rico; M.S.N. Universidad de Puerto Rico, Recinto de Ciencias Médicas.

CONCEPCIÓN MÁRQUEZ, FRANCISCO J., Instructor de Justicia Criminal. B.A. Universidad Central de Bayamón; J.D. Universidad de Puerto Rico; LL.M. American University

FERNÁNDEZ APONTE, IRENE, Catedrática. B.A., M.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ph.D. Universidad de Valladolid, España.

GARCÍA CINTÓN, WANDA I. Catedrática Auxiliar de Enfermería. B.S.N, M.S.N. Universidad de Puerto Rico, Recinto de Ciencias Médicas

GONZÁLEZ RODRÍGUEZ, EVELYN, Catedrática Asociada de Inglés. B. A., M. A. Universidad Interamericana de Puerto Rico.

GUERRERO DÍAZ, OMAR, Catedrático Auxiliar Ciencias de la Salud. B.S. Universidad de Puerto Rico: M.D. Universidad Autónoma de Guadalajara

LEBRÓN KURI, ALFREDO J., Catedrático Auxiliar B.B.A Universidad de Puerto Rico: M.B.A Universidad Metropolitana; Ph.D. Universidad Interamericana de Puerto Rico.

LOZANO ROLÓN, WILSON E., Catedrático Auxiliar de Computación Educativa. B.S. Universidad Industrial de Santander, Bucaramanga Colombia; M.S. Universidad de Puerto Rico, Recinto de Mayagüez

MARRERO RIVERA, LOURDES, Catedrática Auxiliar de Administración de Sistemas de Oficina. B.S.S. Universidad de Puerto Rico; M.A. New York University.

MELÉNDEZ LEÓN, MARÍA V., Catedrática Auxiliar de Contabilidad. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico.

MELÉNDEZ ORTEGA, MARÍA M., Instructora de Biología. B.S., M.S. Universidad Interamericana de Puerto Rico.

MERCADO REYES, SUHEILY; Instructora de Tecnología Radiológica. B.S. Universidad del Este; M.B.A Columbia Centro Universitario

MIRANDA BURGOS, CORALYS, Instructora de Tecnología Radiológica. B.S. Universidad del Este; M.B.A. Universidad Metropolitana

MORALES BARREDA, DOYMO, Catedrático Auxiliar de Matemáticas. Bachiller en Matemáticas, Magister en Ciencias, Universidad de Concepción, Chile.

MORALES SÁNCHEZ, LUIS R., Catedrático de Educación. B.A. Universidad de Puerto Rico; M.A. y Ed. D. Universidad Interamericana de Puerto Rico.

MORALES SANTIAGO, GAMALIEL, Catedrático Auxiliar de Educación. B.A. Universidad Interamericana de Puerto Rico; M.A. Universidad de Puerto Rico; M.Th. Seminario Evangélico de Puerto Rico; Ed.D. Universidad de Puerto Rico.

NEGRÓN BERRÍOS, JUAN A., Catedrático de Química / Profesor Investigador Distinguido. B.S. Pontificia Universidad Católica de Puerto Rico; M.S. University of Arkansas; Ph.D. Universidad de Puerto Rico.

OTERO LUGO, DEYKA, Catedrática Auxiliar de Español. B.A., M.A., Ph.D. Universidad de Puerto Rico, Recinto de Río Piedras

OVIEDO LICONA, OSBERT, Instructor de Física, B.S. Universidad Nacional de San Antonio Abad del Cusco, Perú; M.S. Universidad de Puerto Rico.

PÉREZ MELÉNDEZ, JOSÉ A., Catedrático Auxiliar de Química, B.S.; M.S. Pontificia Universidad Católica de Puerto Rico.

PÉREZ RIVERA, ELGA, Instructora de Enfermería. B.S.N. Universidad Interamericana de Puerto Rico; M.S.N. Pontificia Universidad Católica de Puerto Rico.

PIZARRO SANTIAGO, VILMA G., Catedrática Asociada de Inglés. B.A., M.A., Ed. D. Universidad de Puerto Rico.

RODRÍGUEZ MORALES, ROSA C., Catedrática Asociada de Educación. B.A., M.S. Universidad de Puerto Rico; M.A., Ed.D. Universidad Interamericana de Puerto Rico.

SANTIAGO DÍAZ, ORLANDO, Catedrático de Español/Profesor Investigador Distinguido; B.A., M.A. Universidad Interamericana de Puerto Rico; Ph.D. Universidad de Valladolid, España.

SEGARRA RÍOS, SAMUEL O., Catedrático Auxiliar de Computadoras. B.S., M.A. Universidad Interamericana de Puerto Rico.

TORRES RODRÍGUEZ, ANA, Catedrática Auxiliar de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

TORRES SUÁREZ, IRMA D., Catedrática Auxiliar de Ciencias Sociales. B.A., M.A. Universidad Interamericana de Puerto Rico; M.A. Universidad de Puerto Rico.  
VÉLEZ PERÉLEZ, SARAH, Catedrática Asociada de Biología. B.S. Universidad Interamericana de Puerto Rico; M.A. New York University.  
ZAYAS RODRÍGUEZ, WILFREDO. Catedrático Auxiliar Contabilidad. B.S. Universidad de Puerto Rico; M.B.A. Universidad Central de Bayamón; D.B.A. Universidad Interamericana de Puerto Rico  
ZOFAKIS DE LEÓN, ALICIA E., Catedrática Auxiliar de Inglés. B.A. University of Maryland; M.A. Universidad Interamericana de Puerto Rico.

## **Faculty Bayamón Campus**

ABONGÜEZ RIVERA LÓPEZ, JOSÉ M., Instructor de Informática. B.S. Universidad de Puerto Rico; M.S. Drexel University.  
ALVARADO ZAYAS, IRMA, Catedrática Asociada de Administración de Empresas. B.B.A. Universidad de Puerto Rico; M.B.A., Ph.D. Universidad Interamericana de Puerto Rico.  
AGUILAR RAMOS, CATHERINE, Instructora de Ingeniería Industrial. B.S. Universidad Javeriana, Colombia; M.E. Universidad de Puerto Rico.  
ARROYO OTERO, BEATRIZ, Catedrática Auxiliar de Educación Comercial. B.A. Universidad de Puerto Rico; M.A. New York University.  
BALLESTER NEGRÓN, IRMA, Catedrática Asociada de Español. B.A. Pontificia Universidad Católica de Puerto Rico; M.A. State University of New York.  
BALLESTEROS BENAVIDES, MARÍA E., Catedrática Asociada de Química. Licenciatura en Ciencias, Universidad de Pedagogía Nacional de Colombia; M.S., Ed.D. Universidad de Puerto Rico.  
BARRIERA VIRUET, HERIBERTO, Catedrático Asociado de Ingeniería Industrial. B.S., M.S., Ph.D. Universidad de Cincinnati, Ohio.  
BRUCKMAN VARGAS, HENRY, Instructor de Informática. B.A. Universidad de Puerto Rico; M.S.C.S. Universidad Politécnica de Puerto Rico.  
CAISEDA ACANTILADO, CARMEN, Catedrática Auxiliar de Matemáticas. B.S., M.S. Universidad de Puerto Rico; Ph.D. George Mason.  
CALAF CLOUTHIER, JORGE, Catedrático de Aeronáutica. M.A. Duke University; Durham, North Carolina.  
CANALES PASTRANA, RAFAEL, Catedrático Auxiliar de Física. B.A., M.S. Universidad de Puerto Rico.  
CARDONA HERNÁNDEZ, LUIS M., Catedrático Auxiliar de Ciencias de Computadoras. B.S., M.A. Universidad Interamericana de Puerto Rico.  
CARRERAS GUZMÁN, GISELA, Catedrática Auxiliar de Español. Ph.D. Universidad de Puerto Rico.  
CARRERO MORALES, GISELA, Catedrática Asociada de Mercadeo. B.B.A. Universidad de Puerto Rico; M.B.A. Bowling Green State University.  
CARRERO RÍOS, YVONNE, Catedrática Auxiliar de Inglés. B.A. Universidad Interamericana de Puerto Rico; M.A. New York University of Massachusetts.  
CASTRO HAEDO, JOSÉ, Instructor de Ingeniería Industrial. B.S. Universidad Interamericana de Puerto Rico; M.E. Universidad Politécnica de Puerto Rico.  
CORREA GUZMÁN, ALBERTO, Catedrático Asociado de Matemáticas. M.A., Ed.D. Universidad Interamericana de Puerto Rico.  
CRUZ GARCÍA, GLADYS, Catedrática Auxiliar de Inglés. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.  
CRUZ LAUREANO, MELISSA, Instructora de Ingeniería Industrial. B.S. Universidad de Puerto Rico; M.R. North Carolina State University.  
CRUZ MALAVÉ, TERESA, Catedrática de Matemáticas. B.S., M.Ed., Ed.D. Universidad de Puerto Rico.  
CRUZ MAURA, JOSÉ M., Instructor de Enfermería. M.S.N. Universidad de Puerto Rico.  
CUETO TORO, OMAR, Catedrático de Química. B.S. Universidad Católica de Valparaíso, Chile; Ph.D. Universidad de Puerto Rico.  
DÁVILA ADAMS, EVELYN, Catedrática Auxiliar de Matemáticas. B.S., M.S. Universidad de Puerto Rico.  
DE HOYOS BALASQUIDE, CELESTINO, Catedrático Auxiliar de Finanzas. M.B.A. Universidad Interamericana de Puerto Rico.  
DEL TORO DELGADO, LUIS, Catedrático Asociado de Psicología. B.B.A. Universidad de Puerto Rico; M.S., Ph.D. Centro Caribeño de Estudios Posgraduados.

DÍAZ NEVÁREZ, OTONIEL, Catedrático Auxiliar de Ingeniería Mecánica. B.S.M.E., M.S.C.E., Ph.D. Universidad de Puerto Rico.

DI LEO TORRES, GRACE, Catedrática Auxiliar de Administración de Empresas. B.B.A. University of Western Sydney; M.B.A. Universidad Interamericana de Puerto Rico; Ph.D. Northcentral University.

ESCALANTE GOCHEZ, JORGE, Catedrático Auxiliar de Física. M.S., Ph.D. University of South Carolina.

ESCUDERO ÁLVAREZ, ELENA, Catedrática Asociada de Idiomas. Maestría en Filosofía y Letras, Universidad Complutense de Madrid.

FERRER RODRÍGUEZ, IVÁN, Catedrático de Biología. B.S., M.S., Ph.D. Universidad de Puerto Rico.

FIGUEROA RODRÍGUEZ, CARMEN M., Catedrática Auxiliar de Ciencias Secretariales. B.A. Universidad de Puerto Rico; M.A. New York University.

FLORES FLORES, RUBÉN, Catedrático Auxiliar de Ingeniería Eléctrica. B.S. Universidad de Puerto Rico; M.S. Johns Hopkins University.

GARAYTA MIJARES, ISABEL, Catedrática Auxiliar de Inglés. B.A., M.A. Universidad de Puerto Rico; Ph.D. University of Texas at Austin.

GARCÍA CINTRÓN, ANA C., Instructora de Enfermería. B.S.N. Universidad Interamericana de Puerto Rico; M.S.N. Universidad de Puerto Rico.

GIRALDO CONCHA, GERMÁN, Catedrático Auxiliar de Economía. B.A. Universidad del Valle; M.A. Universidad de Puerto Rico.

GONZÁLEZ DILÁN, JOSÉ, Catedrático Auxiliar de Ciencias de Computadoras. B.S. Universidad de Puerto Rico; M.S. EDP College.

GONZÁLEZ QUILES, LOURDES, Catedrática Auxiliar de Ciencias de Computadoras. B.S. Universidad Interamericana de Puerto Rico; M.S. Universidad de Puerto Rico.

GONZÁLEZ RIVERA, CAROLINE, Catedrática Auxiliar de Ingeniería Eléctrica. B.S. Universidad de Puerto Rico; M.S. Johns Hopkins University.

GONZÁLEZ RIVERA, EDWIN, Catedrático Auxiliar de Contabilidad. B.B.A. Universidad de Puerto Rico; M.B.A. McNeese State University.

HENDRICKS KIRCHNER, TIMOTHY J., Profesor Investigador. B.S., B.A. John Hopkins; Ph.D. Case Western Reserve University.

HERNÁNDEZ RÍOS, RUTH, Catedrática Auxiliar de Comunicaciones. B.A. Universidad de Puerto Rico; M.A. Universidad de Navarra.

ISHAM ROSENWALD, BRETT C., Catedrático de Física. B.S. Stanford University; Ph.D. Cornell University.

LAY LAY, EDUARDO, Catedrático Asociado de Ingeniería Mecánica. B.S. Embry-Riddle Aeronautical University; M.E. Florida Atlantic University.

LEÓN RIVERA, LOIDA, Catedrática Auxiliar de Idiomas. B.A., M.A. Universidad de Puerto Rico.

LUGO CHINCHILLA, ANA M., Catedrática Asociada de Biología. B.S., M.S., Ph.D. Universidad de Puerto Rico.

MATCHETT, ASHLEY ARTHUR, Catedrático Auxiliar de Ciencias Forenses. B.S., Ph.D. University of Central Lancashire.

MALAVÉ SÁNCHEZ, JAIME, Catedrático de Música. B.M. Conservatorio de Música; B.A., M.Ed. Universidad de Puerto Rico; M.M., Ph.D. Texas University.

MALDONADO AYALA, JOEL, Instructor de Comunicaciones. M.A. Atlantic College.

MARCANO SANTIAGO, FRANCISCO, Catedrático Auxiliar de Química. B.S. Universidad de Puerto Rico; M.S. Arizona State University.

MARTÍNEZ FIGUEROA, DAVID, Catedrático Auxiliar de Contabilidad. M.B.A. University of Phoenix.

MEDRANO HERRRERO, PÍO, Catedrático de Español. B.A. Pontificia Universidad Católica de Puerto Rico; M.A. Universidad de Puerto Rico; Ph.D. Universidad de Valladolid.

MEJÍAS FRANQUI, SONIA, Catedrática Auxiliar de Matemáticas. B.A., M.A. Universidad de Puerto Rico.

MENÉNDEZ CÓRDOVA, MARCOS, Catedrático Auxiliar de Administración de Empresas. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico; Ph.D. Fordham University.

MEZA CASTILLO, OMAR, Catedrático Auxiliar de Ingeniería Mecánica. B.S. Universidad Nacional del Santa, Perú; M.S. Universidad de Puerto Rico; Ph.D. West Virginia University.

MIGNUCCI GIANNONI, ANTONIO, Catedrático de Biología, B.S. Colorado State University; M.A. University of Rhode Island; Ph.D. Universidad de Puerto Rico.

MILLER HAZEL, ANDRÉS, Catedrático Auxiliar de Química. B.S., M.S. Instituto Tecnológico de Vornezh, Unión Soviética.

MONTALVO FIOL, FRANCISCO, Catedrático Auxiliar de Administración de Empresas. B.S. Embry-Riddle Aeronautical University; M.B.A. Baruch College; D.B.A. Case Western Reserve University.

MORA HERAS, KAREN, Instructora de Enfermería. M.S. Recinto de Ciencias Médicas, Universidad de Puerto Rico.

MOURE Y DE ARMAS, ESTHER, Catedrática Auxiliar de Contabilidad. B.B.A., M.B.A. Universidad de Puerto Rico.

MUÑOZ PEREA, MIGUEL, Catedrático Auxiliar de Ingeniería Eléctrica. B.S.E.E. Universidad de Puerto Rico; M.B.A., M.S.E.E. University of Central Florida.

MUÑOZ STORER, LUIS H., Catedrático Asociado de Español. B.A., M.A. Syracuse University; Ph.D. New York University.

NIEVES PIZARRO, YADIRA, Instructora de Comunicaciones. B.A., M.A. Universidad de Puerto Rico.

NIEVES RIVERA, RAFAEL, Catedrático Asociado de Informática. B.S. Universidad Interamericana de Puerto Rico; M.B.A. Universidad del Turabo; M.I.S. EDP College of Puerto Rico; D.B.A. Universidad del Turabo.

OCASIO HENRIQUEZ, CAROLINE, Instructora de Aeronáutica. B.S. Embry-Riddle Aeronautical University; M.B.A. University of Phoenix.

OLIVARES PACHECO, CARLOS J., Catedrático de Informática. B.S., M.B.A. Universidad del Sagrado Corazón; M.B.A., Ph.D. Universidad Interamericana de Puerto Rico.

OLIVEROS MERIZALDE, EDGARDO, Catedrático Asociado de Ingeniería. M.S., Ph.D. Brunel University, England.

OTERO SANTIAGO, ERIC, Catedrático Asociado de Inglés. M.Ed. Universidad de Puerto Rico; Ph.D. Fordham University.

PÉREZ DÍAZ, EDUARDO, Catedrático Asociado de Ingeniería Mecánica. M.S. Universidad de Puerto Rico; Ph.D. West Virginia University.

PRATTS RIVERA, EDGARDO, Catedrático en Historia. B.A., J.D. Pontificia Universidad Católica de Puerto Rico; M.A. Universidad de Puerto Rico; Ph.D. Universidad Nacional Autónoma de Méjico; Diplomado del Programa Doctoral de Historia de América, Universidad de Valladolid, España.

QUINTANA MÉNDEZ, JAVIER, Catedrático Asociado en Ingeniería Eléctrica. B.S.E.E. Universidad de Puerto Rico, M.S., Ph.D. Rensselaer Polytechnic Institute.

QUIÑONES GUERRA, VICTOR, Instructor de Inglés. B.A. Universidad de Puerto Rico; M.Ed., M.A. Columbia University Teachers College; Ed.D. Teacher College, Columbia University.

REY SANTOS, ROSAMIL, Catedrática Auxiliar de Química. B.S. Universidad de Puerto Rico; M.A., Ph.D. State University of New York.

RINCÓN CHARRIS, AMÍLCAR, Catedrático Auxiliar de Ingeniería Mecánica. M.S.M.E. Universidad de Puerto Rico.

RÍOS RODRÍGUEZ, LAURA, Catedrática Asociado de Español. B.A. Universidad de Puerto Rico; M.S. University of Bridgeport; M.A. Universidad de Puerto Rico.

RIVERA ALGARÍN, JUAN O., Catedrático de Administración de Empresas. B.A., M.A. Universidad de Puerto Rico; Ph.D. University of Kansas.

RIVERA BETANCOURT, HARRY, Catedrático Auxiliar de Química. B.S., Ph.D. Universidad de Puerto Rico.

RIVERA HERNÁNDEZ, CARMEN, Catedrática Auxiliar de Contabilidad. B.A., M.B.A. Universidad Interamericana de Puerto Rico.

RIVERA MARCHAND, BERT, Catedrático Asociado de Biología. B.A., Universidad Interamericana de Puerto Rico; M.S., Ph.D. Universidad de Puerto Rico.

RIVERA NEGRÓN, ADA ROSA, Instructora de Arte. B.A., Universidad de Puerto Rico; M.A., Universidad Nacional Autónoma de México.

RIVERA PAGÁN, ZULMA, Catedrática Asociada de Biología. B.S., M.S., Ph.D. Universidad de Puerto Rico.

ROCHA SANTIAGO, IVVOR L., Instructor de Justicia Crimina. B.A., M.A. Universidad Interamericana de Puerto Rico.

RODRÍGUEZ BERRÍOS, MARTA, Catedrática Auxiliar de Mercadeo. B.A., M.B.A. Universidad Interamericana de Puerto Rico.

RODRÍGUEZ DURÁN, ARMANDO, Catedrático de Biología. B.S., M.S., Universidad de Puerto Rico; Ph.D. Boston University.

RODRÍGUEZ ORTEGA, JOSÉ O., Catedrático Auxiliar de Informática. B.S. Universidad Interamericana de Puerto Rico; M.S. Johns Hopkins University.

RODRÍGUEZ PÉREZ, JOBANY. Catedrático Auxiliar de Ingeniería de Computadoras. Ph.D. Texas A & M University.

ROSADO VELEZ, SILVIA., Catedrática Auxiliar de Enfermería. BSN., MSN. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

SANTIAGO RÍOS, VANESA, Instructora de Administración de Empresas. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad Católica de Puerto Rico; Ph.D. Universidad Interamericana de Puerto Rico.

SANTIAGO VÁZQUEZ, JOSÉ G., Catedrático de Español. M.Ed., Ph.D. Universidad de Puerto Rico.

SERRANO NUÑEZ, YOLANDA, Catedrática Asociada de Biología. B.S., M.S. Universidad de Puerto Rico; Ph.D. Universidad Complutense de Madrid.

SIERRA PADILLA, JAVIER O., Catedrático Auxiliar de Matemáticas. B.S., M.S. Universidad de Puerto Rico.

SIGNORET RODRÍGUEZ, MARIO, Catedrático Auxiliar de Administración de Empresas. B.S. Profesional Aeronautics Embry Riddle Aeronautical University; M.B.A. Universidad de Puerto Rico, Recinto de Río Piedras.

SOLIVAN ROMÁN, SAMUEL, Catedrático de Religión. B.A. Central Bible College; M. Div. Western Theological Seminary; M. Phil., Ph.D. Union Theological Seminary.

TIRADO MERCED, DULCE M., Catedrática Asociada de Historia. B.A., M.A. Universidad de Puerto Rico.

TORO JIMÉNEZ, NILSA, Catedrática Asociada de Matemáticas. B.A., M.Ed. Universidad de Puerto Rico.

TORRES PADILLA, DORCAS, Catedrática Asociada de Física. B.S., M.S. Universidad de Puerto Rico.

TORRES RODRÍGUEZ, IRMA, Catedrática Auxiliar de Inglés. B.A., M.Ed. Universidad de Puerto Rico.

VALENTINO QUILES, BELINDA, Instructora de Inglés, B.A., M.A. Universidad de Puerto Rico.

VARDAR ERGIN, NEDIM, Catedrático Asociado de Ingeniería Industrial. B.S.E.E., M.S.E.E. Yildiz Technical University; Ph.D. Illinois Institute of Technology.

VÁZQUEZ TORRES, MARÍA DEL P., Catedrática Auxiliar de Inglés. B.A., M.Ed. Universidad de Puerto Rico.

VELÁZQUEZ RIVERA, JONATHAN, Catedrático Auxiliar de Aeronáutica. B.S., M.A. Universidad Interamericana de Puerto Rico.

VELÁZQUEZ SÁNCHEZ, FÉLIX, Instructor de Comunicaciones. M.A., J.D. Universidad de Puerto Rico.

VERA MÉNDEZ, JUAN, Catedrático Asociado de Religión. B.A. Universidad de Puerto Rico; M.A. Seminario Evangélico de Puerto Rico; Ph.D. Graduate Theological Foundation.

VERA QUESADA, BENSA, Catedrática Asociada de Español. M.A., Ph.D., Washington University.

VICENTE GONZÁLEZ, EDWARD, Catedrático Auxiliar de Administración de Empresas. B.S. Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico.

VIVONI ALONSO, ALBERTO, Catedrático Asociado de Química. Ph.D. City University of New York.

VIZCARRONDO GODREAU, MARÍA J., Catedrática Asociada de Comunicaciones. B.A. Universidad de Puerto Rico; M.S. Boston University.

YECKLE SÁNCHEZ, JAIME, Instructor de Ingeniería de Computadoras. B.A., Antenor Orrego de Trujillo, Perú; M.S. Universidad de Puerto Rico.

## Faculty Fajardo Campus

ARROYO MÉNDEZ, ROSA, Catedrática Auxiliar de Justicia Criminal. B.A. Universidad de Puerto Rico; M.A., Ed.D. Universidad del Turabo.

ÁVILA GÓMEZ, JUSTINO, Catedrático Auxiliar de Computadoras. B.S. Universidad de Puerto Rico; M.S. EDP College.

BATISTA GARCÍA, NORMA L., Catedrática Asociada de Trabajo Social. B.S. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ed.D. Universidad de Puerto Rico.

BEAL GAUTHIER, MICHELLE C., Instructora de Inglés. B.A. Florida International University; M.A. College of William & Mary.

BUSÓ TORRES, MARÍA DEL L., Catedrática Auxiliar de Trabajo Social. B.A., M.A., Universidad de Puerto Rico.

CAMACHO FERNÁNDEZ, RAMÓN L., Instructor de Contabilidad. B.B.A. Universidad Interamericana de Puerto Rico; M.B.A. Universidad Metropolitana.

CABRERA COLLAZO, RAFAEL L., Catedrático de Historia. B.A., M.A., Ph.D. Universidad de Puerto Rico.

CAMACHO COLÓN, LOURDES, Instructora de Terapia del Habla y Lenguaje, B.A., M.A. Universidad de Puerto Rico.

CARDONA BENABE, MIGDALIA, Catedrática de Educación. B.S. Universidad de Puerto Rico; M.A. University of Phoenix; Ed. D. Universidad Interamericana de Puerto Rico.

CUADRADO ORTIZ, JUAN R., Catedrático Auxiliar de Ciencias Sociales. B.A., M.A., Universidad de Puerto Rico.

DEL VALLE RIVERA, WILFREDO, Catedrático de Mercadeo. M.B.A. Universidad Interamericana de Puerto Rico. Ph.D. Capella University

DONATO CINTRÓN, MILAGROS, Catedrática Auxiliar de Computadoras. B.S. Universidad Interamericana de Puerto Rico; M.S. Universidad del Turabo.

DONES MORALES, LUZ S., Catedrática Auxiliar de Administración de Sistemas de Oficina. B.A., Ed. Universidad de Puerto Rico; M.A. New York University.

DONES SÁNCHEZ, HAYDÉE, Catedrática Auxiliar de Contabilidad. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico.

GARCÍA RAMÍREZ, CARLOS I., Catedrático Asociado de Computadoras. B.A., M.A. Universidad de Puerto Rico; Ph.D. University of Utah.

GELABERT TORO, OSVALDO, Catedrático Auxiliar de Turismo. B.A. Universidad del Sagrado Corazón; M.A. Universidad Politécnica de Valencia en España.

GÓMEZ JIMÉNEZ, IRIS M., Catedrática Asociada de Matemáticas. B.A., M. Ed.D. Universidad de Puerto Rico.

LÓPEZ ALEMÁN, MERCEDES, Catedrática Auxiliar de Matemáticas, B.A., M.A. Universidad de Puerto Rico.

MACKENZIE MARÍN, JUAN M., Catedrático Asociado de Biología. Pre Médica, Universidad de Puerto Rico; Doctor en Medicina, Universidad Central del Este, República Dominicana.

MALDONADO VILLAMIL, FRANCISCO J., Catedrático Asociado de Educación. B.A. Universidad de Puerto Rico; M.A. Fordham University; Ed.D. Universidad Interamericana de Puerto Rico.

MARTÍNEZ ORTIZ, JAVIER, Catedrático Auxiliar de Inglés. B.A., M.A. Universidad de Puerto Rico.

MIRANDA RODRÍGUEZ, RAFAEL, Catedrático Asociado de Química. M. Ed. Universidad de Puerto Rico.

MONTES OLMEDA, PORFIRIO, Catedrático de Educación. B.A. Universidad de Puerto Rico; M.A. Fordham University; Ed.D. Universidad Interamericana de Puerto Rico.

MORALES VARGAS, IRMA L., Catedrática Auxiliar de Matemáticas. B.S. Universidad de Puerto Rico; M.Ed. Universidad del Sagrado Corazón.

MOREIRA REYES, ARLENE Z., Catedrática Asociada de Religión. B.A. Universidad de Puerto Rico; M.A. San Diego State University; Minister Doctor, Eastern Baptist Theological Seminary.

MUNDO DOSAL, IVÁN T., Catedrático Auxiliar de Inglés. B.S., M.Ed. Pontificia Universidad Católica de Puerto Rico.

ORTIZ CARRIÓN, WANDA, Catedrática Auxiliar de Biología. B.S., M.S. Universidad de Puerto Rico.

ORTIZ RODRÍGUEZ, MADELINE, Catedrática Asociada de Computadoras. B.A., M.Ed. Universidad de Puerto Rico. M. A. Universidad de Iowa, Ph. D. Universidad de Florida.

PADÍN ZAMOT, GERARDO, Catedrático Auxiliar de Administración de Empresas. B.A., M.A., Ph.D. Universidad Interamericana de Puerto Rico.

PÉREZ FERNÁNDEZ, ALICE G., Instructora de Psicología. B.A., M.A. Universidad de Puerto Rico.

PÉREZ DEL VALLE, LOURDES, Catedrática Asociada de Español. B.A., M.A. Universidad Interamericana de Puerto Rico.

PINO MARINAS, ANTONIA T., Catedrática Asociada de Español. B.A., M. A. Universidad de Puerto Rico.

PIÑERO PIÑERO, JORGE L., Catedrático Auxiliar de Biología. B.S. Universidad de Puerto Rico; M.S. University of Bridgeport.

RIVERA FELICIANO, LUZ D., Catedrática Auxiliar de Español. B.A., M.A. en Educación. Universidad Interamericana de Puerto Rico.

RIVERA ORTIZ, MARIELI, Catedrática Auxiliar de Ética. B.A. Universidad de Puerto Rico; M.A. Seminario Evangélico; Ph. D. Universidad Interamericana de Puerto Rico

RIVERA QUIÑONES, LORELL I., Catedrática Auxiliar de Educación Física. B.A. Universidad de Puerto Rico, M.A. Universidad del Turabo.

ROBLES GARCÍA, YOLANDA, Catedrática de Biología. B.S., M.A., Ph.D. Universidad de Puerto Rico.

RODRÍGUEZ ROSA, JESSICA, Catedrática Auxiliar de Trabajo Social. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

SILVA RIVAS, CYNTHIA I., Catedrática Auxiliar de Economía. B.A., M.A. Universidad de Puerto Rico.

SUÁREZ HERRERO, ISMAEL, Catedrático de Educación. B.A. Universidad de Puerto Rico; M.A. New York University; Ed. D. Universidad Interamericana de Puerto Rico.

TORRES BONILLA, ÁNGEL, Catedrático Auxiliar de Ciencias de Computadoras. M.I.S. Electronic Data Processing College.

TRUJILLO JIMÉNEZ, ANA D., Catedrática Auxiliar de Recursos Humanos. M.B.A. Universidad Interamericana de Puerto Rico.

## **Faculty Guayama Campus**

ANDÚJAR MATOS, GILBERT, Catedrático Auxiliar de Instalación y Reparación de Sistemas Computadorizados y Redes. B.S., M.A. Universidad Interamericana de Puerto Rico.

BIRD CARMONA, ARTURO, Catedrático Asociado de Historia. B.A., M.A. Universidad de Puerto Rico; Ph.D. The University of Iowa.

BORIA FONSECA, YARITZA, Catedrática Auxiliar de Técnico de Farmacia. B.A. Universidad Interamericana de Puerto Rico.

BRISTOL ANGELI, JOSÉ, Instructor de Cuidado Cardiorrespiratorio. B.S.N. Universidad Interamericana de Puerto Rico; M.S.N. Columbia Centro Universitario.

CARDENALES ORTIZ, CARMEN I., Catedrática Auxiliar de Enfermería. B.A. Universidad Interamericana de Puerto Rico; M.S. Universidad de Puerto Rico.

CARRILLO RODRÍGUEZ, EDELMIRO, Catedrático Asociado de Cuidado Cardiorrespiratorio. B.S. Pontificia Universidad Católica de Puerto Rico. M.D. Pontificia Universidad Católica Madre y Maestra, República Dominicana.

CARTAGENA GARCÍA, MADELINE, Catedrática Auxiliar de Enfermería. B.S.N. Universidad de Puerto Rico; M.S.N. Pontificia Universidad Católica de Puerto Rico.

COBEO NEGRÓN, CARLOS, Catedrático Auxiliar de Enfermería. B.S. Antillian College; M.S.N. Pontificia Universidad Católica de Puerto Rico.

COLON APONTE, JOSÉ R. Catedrático Auxiliar de Computadoras. B.A., M.B.A. Universidad de Puerto Rico; D.B.A. Universidad del Turabo.

COLÓN RAMOS, CARLOS E., Catedrático Asociado de Educación. B.A. Universidad Interamericana de Puerto Rico; M.A. Universidad de Puerto Rico.

DÁVILA COLÓN, RUBÉN, Catedrático Asociado de Administración de Empresas. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico.

DE JESÚS ALICEA, ÁNGELA, Catedrática de Enfermería. B.S.N., M.S.N., C.N.S. Universidad de Puerto Rico; Ph.D. The Pennsylvania State University.

DE JESÚS ORTIZ, SANTOS L., Catedrático Auxiliar de Biología. B.S., M.S. Universidad de Puerto Rico.

FEBRES SANTIAGO, SAMUEL F., Catedrático de Educación. B.A. Universidad Interamericana de Puerto Rico; M.A.E. Universidad de Puerto Rico; M.A., M.Ed. Temple University; Ph.D. Seton Hall University.

GARCÍA FERNÁNDEZ, NYDIA, Catedrática Asociada de Inglés. B.A. Brooklyn College; M.A. New York University.

GONZÁLEZ MERCADO, NELSON, Catedrático de Historia. B.A., M.A. Universidad de Puerto Rico; Ph.D. Centro de Estudios Avanzados de Puerto Rico y el Caribe.

IRIZARRY PÉREZ, JOSEFINA, Catedrática Asociada de Español. B.A. Pontificia Universidad Católica de Puerto Rico; M.A. Universidad de Puerto Rico.

IRIZARRY VÁZQUEZ, DAISY, Catedrática Asociada de Inglés. B.A. Pontificia Universidad Católica de Puerto Rico; M.A. Universidad de Puerto Rico.

JUSINO CAMPOS, EDGARDO, Catedrático de Español. B.A, M.A., Ph.D. Universidad de Puerto Rico.

LABOY RODRÍGUEZ, MAYRA E., Catedrática Auxiliar de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico.

MALDONADO DE GONZÁLEZ, CARMEN, Profesora Emérita. B.A., M.A. Universidad Católica de Puerto Rico.

MARTÍNEZ JUSINO, ELIZABETH, Catedrática Asociada de Educación. B.S., M.A. Pontificia Universidad Católica de Puerto Rico.

MATEO MARTÍNEZ, JOSÉ A., Catedrático Auxiliar de Español. B.A. Universidad Mundial; M.A. Governor's State University.

MEJÍA PARDO, FEDERICO, Catedrático Auxiliar de Matemáticas. B.A. Universidad Tecnológica de Pereira-Colombia; M.S. Universidad Nacional de Colombia.

MIRANDA GARCÍA, AIDA W., Catedrática Auxiliar de Química. B.A. Universidad Interamericana de Puerto Rico; M. Ed. Pontificia Universidad Católica de Puerto Rico.

MORALES COLÓN, ROSALÍA, Catedrática de Administración de Sistemas de Oficina. M.A. New York University; B.A., M.A., Ed.D. Universidad de Puerto Rico.

MORERA GONZÁLEZ, LUIS R., Catedrático Auxiliar de Matemáticas. B.S., M.S. Universidad de Puerto Rico.

MÚJICA VÁZQUEZ, EVELYN, Catedrática Auxiliar de Biología. B.A., M.A. Universidad de Puerto Rico.

MULERO LÓPEZ, MINERVA, Catedrática Auxiliar de Enfermería. B.S.N. Universidad de Puerto Rico, Recinto de Humacao, M.S.N., Recinto de Ciencias Médicas; Ph.D. Universidad Católica de Puerto Rico.

ORTIZ MARTÍNEZ, ÁNGEL R. Instructor de Educación Física. B.A., M.A., Universidad Interamericana de Puerto Rico.

ORTIZ MATEO, EDWIN, Catedrático Asociado de Administración de Empresas. B.B.A., M.B.A. Pontificia Universidad Católica de Puerto Rico.

PAGÁN LÓPEZ, JANICE N., Catedrática Asociada de Educación. B.A., M.A. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

REVERÓN LEBRÓN, DIANA, Catedrática Auxiliar de Justicia Criminal. B.A. Universidad de Puerto Rico; J.D., M.A. Pontificia Universidad Católica de Puerto Rico.

RIVERA CARRIÓN, YAITZA, Instructora de Enfermería. B.S.N. Universidad de Puerto Rico, Recinto de Humacao; M.S.N. Carribean University.

RIVERA GONZÁLEZ, MARÍA G., Catedrática Auxiliar de Instalación y Reparación de Sistemas Computadorizados y Redes. M.A. New York University.

ROBLES TORRES, RAY, Catedrático de Educación. B.A. Pontificia Universidad Católica de Puerto Rico; M.S. State University of New York; Ph.D. The Pennsylvania State University.

RODRÍGUEZ PAZO, JEAN, Catedrática de Inglés. B.A., M.A. Pontificia Universidad Católica de Puerto Rico; Ph.D. Southern University.

RODRÍGUEZ RODRÍGUEZ, NYDIA, Catedrática Auxiliar de Biotecnología. B.A., M.A., Ph.D. Universidad de Puerto Rico, Recinto de Mayagüez.

SÁNCHEZ SANTIAGO, LUIS R., Catedrático Asociado de Instalación y Reparación de Sistemas Computadorizados y Redes. B.S. Universidad de Puerto Rico; M.S. Universidad Interamericana de Puerto Rico.

SOLTERO CRUZ, RAMÓN A., Catedrático Asociado de Español. B.A. Fordham University; M.A. Columbia University.

TORRES OCASIO, JUAN L., Catedrático Auxiliar de Gerencia de Recursos Humanos. B.B.A., M.B.A. Universidad Interamericana de Puerto Rico.

TORRES TORRES, CARMEN J., Catedrática Auxiliar de Química. B.S., M.S. Pontificia Universidad Católica de Puerto Rico.

TORRES ZAYAS, MARISOL, Catedrática Auxiliar de Enfermería. B.S.N. Universidad Interamericana de Puerto Rico; M.S.N. Universidad de Puerto Rico.

VEGA COLÓN, MÁXIMO, Catedrático Auxiliar de Instalación y Reparación de Sistemas Computadorizados y Redes. M.S. Universidad del Sagrado Corazón de Puerto Rico.

VELÁZQUEZ GONZÁLEZ, MARISOL, Catedrática Auxiliar de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico. Ed.D. Pontificia Universidad Católica de Puerto Rico.

VELÁZQUEZ GONZÁLEZ, ELIZABETH, Instructora de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico.

## **Faculty Metropolitan Campus**

ACEVEDO, HÉCTOR LUIS, Catedrático de Ciencias Políticas. J.D. Universidad de Puerto Rico.

ACEVEDO RODRÍGUEZ, LUIS A., Catedrático Auxiliar de Justicia Criminal. J.D. Pontificia Universidad Católica de Puerto Rico; B.A. Universidad Interamericana de Puerto Rico.

AGUIRRE ESQUER, LUIS, Catedrático de Trabajo Social. M.S.W., Ed.D. Universidad de Puerto Rico.

AGULLÓ ALBERT, ANTONIO, Catedrático de Español. Bach. Cs. Letras, Universidad de Valladolid; M.A., Ph.D. Universidad de Puerto Rico.

ALLENDE GOITÍA, NOEL, Catedrático Asociado de Música. M.A., Universidad de Puerto Rico; Ph.D. Michigan State University.

ALMANSA GONZÁLEZ, EMILY, Catedrática Asociada de Inglés y Lingüística. B.A., M.A., Universidad de Puerto Rico.

ALONSO FABIÁN, MARIA A., Catedrática Auxiliar de Historia. Licenciatura en Historia, Universidad de Asturias, España.

ÁLVAREZ PÉREZ, GISELA, Catedrática Asociada de Psicología. Ph.D. Centro Caribeño de Estudios Posgraduados.

ÁLVAREZ TORRES, IRMA, Catedrática Asociada de Ciencias de Computadoras. B.S. Universidad de Puerto Rico; M.S. The Pennsylvania State University.

AMARO MOLINA, LUIS, Catedrático Auxiliar de Sistemas Computadorizados de Información Gerencial. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico; M.I.S. EDP College.

ARAGUNDE TORRES, RAFAEL A., Catedrático de Educación. Doctorado en Filosofía y Letras, Universidad Pontificia de Salamanca.

ARCHILLA DIAZ, SHEILA, Catedrática de Trabajo Social. M.S.W. Universidad de Puerto Rico; Ph.D. Ohio State University.

ARIAS ENCARNACIÓN, LUIS, Catedrático de Química. Licenciado en Química, Universidad Autónoma de Santo Domingo; Ph.D. Universidad de Puerto Rico.

ARIAS MORALES, WILLIAM E., Catedrático de Biología. B.S., M.S., Ph.D. Universidad de Puerto Rico.

ARILL BENITEZ, AMY, Catedrática Asociada de Inglés y Lingüística. B.A., M.A., Ed.D. Universidad de Puerto Rico.

ARTEAGA NARVÁEZ, EDILBERTO, Catedrático Asociado de Física. M.S. Universidad de Puerto Rico Licenciado en Matemáticas y Física, Universidad del Atlántico, Colombia. Ed.D. Universidad de Puerto Rico, Recinto de Río Piedras.

AVILÉS RUIZ, ZORAIDA, Catedrática Asociada de Trabajo Social. M.S.W., Ph.D. Universidad de Puerto Rico.

AYALA CRUZ, ELIZAIDA, Catedrática Auxiliar de Educación, B.A., Universidad de Puerto Rico, M.A., Ed.D. Universidad Interamericana de Puerto Rico

AYALA DÍAZ, RAMÓN, Catedrático Asociado de Administración de Empresas. B.A., M.B.A. Universidad Interamericana de Puerto Rico.

AYALA SANTIAGO, ÁUREA E., Catedrática de Enfermería. B.S. Universidad Interamericana de Puerto Rico; M.S.N. Universidad de Puerto Rico; D.N.Sc. Widener University.

AYES SANTIAGO, ZULMA, Catedrática de Español. B.A. Universidad Interamericana de Puerto Rico; M.A. Pontificia Universidad Católica de Puerto Rico; Doctorado en Letras, Universidad Nacional Autónoma de México.

BARRIENTOS BATRES, SALOMÓN, Catedrático Auxiliar de Sociología. M.A., Ph.D. Universidad de Puerto Rico; Arquitecto. Universidad Nacional Autónoma de México.

BELÉNDEZ SOLTERO, PILAR, Catedrática de Educación. B.S., M.Ed. Universidad de Puerto Rico; Ph.D. Harvard University.

BENABE, LUIS, Catedrático Asociado de Administración de Empresas. B.S. Universidad de Puerto Rico; M.B.A. Rutgers The State University.

BORRÁS OSORIO, BELMA, Catedrática Asociada de Contabilidad. M.B.A. La Salle University.

BORRÁS OSORIO, JULIO, Catedrático Asociado de Educación Física. B.A. Universidad de Puerto Rico; M.A., New York University.

BOSCH RIVERA, ELENA, Catedrática Asociada de Administración de Empresas. B.A., M.P.A. Universidad de Puerto Rico.

BRITO GÓMEZ, ROSA D., Catedrática Asociada de Química. Licenciatura en Química, Universidad de Oriente, Venezuela; Ph.D. Universidad de Puerto Rico.

BURGOS ACOSTA, WILLIAM C., Catedrático de Trabajo Social. B.A. City University of New York; M.S.W. Fordham University; Ph.D. Columbia University.

CANDELAS JIMÉNEZ, ORLANDO, Catedrático Asociado de Administración de Empresas. B.A., M.P.A. Universidad de Puerto Rico.

CAPARRÓS GONZÁLEZ, VÍCTOR, Catedrático Auxiliar de Economía. B.A., M.A. Universidad de Puerto Rico

CARABALLO LÓPEZ, NILDA, Instructora de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico-Humacao; M.S.N. Universidad de Puerto Rico, Recinto de Ciencias Médicas, Ph.D. Universidad Carlos Albizu.

CARABALLO RÍOS, ÁNGEL L., Catedrático de Ciencias de Computadoras. B.S. Universidad de Puerto Rico; M.S. University of Massachusetts; Ph.D. The Pennsylvania State University.

CARDONA MARTINO, ARMANDO, Catedrático Asociado de Biología. B.S, M.S, Universidad de Puerto Rico

CARRASQUILLO MELÉNDEZ, ERIKA, Catedrática Auxiliar de Enfermería. B.S.N, M.S.N., Universidad del Turabo.

CASTILLO COLÓN VÍCTOR, Catedrático de Economía. B.A., M.S. Universidad de Puerto Rico; Ph.D. Doctor en Economía, Universidad Nacional Autónoma de México.

CIVIDANES ACEVEDO, AWILDA, Catedrática Auxiliar de Enfermería. B.S.N. Universidad Interamericana de Puerto Rico; M.S.N. Universidad de Puerto Rico.

COLLAZO RIVERA, CARMEN, Catedrática de Educación. B.A., M.P. Universidad de Puerto Rico; Ph.D. Florida State University.

COLOM USTARIZ, ANTONIO C., Catedrático Asociado de Química. B.S., Ph.D., Universidad de Puerto Rico.

COLÓN APONTE, ADÁN, Catedrático Auxiliar de Justicia Criminal. M.A. Universidad Interamericana de Puerto Rico.

COLÓN CORA, RAFAEL, Catedrático de Recursos Humanos. B.S., M.P.A. Universidad de Puerto Rico; Ph.D. Northwestern University.

COLÓN TORRES, BALTAZARA, Catedrática de Economía. B.A. Universidad de Puerto Rico; M.A., Ph.D. Rutgers The State University.

COMMANDER MORALES, LINDA, Catedrática Asociada de Biología. B.S. Universidad de Puerto Rico; M.P.H. University of Oklahoma.

COMMANDER MORALES, MILAGROS, Catedrática de Inglés y Lingüística. B.A., M.A. Pontificia Universidad Católica de Puerto Rico; Ph.D. New York University.

CORA GONZÁLEZ, IVETTE, Catedrática Auxiliar. BSN, Universidad Interamericana, M.S. Universidad de Puerto Rico; D.N.P., University of Medicine and Dentistry of New York.

CORA PAGÁN, ROSA M., Catedrática Asociada de Sistemas de Oficina. B.B.A., M.A. New York University.

CORTÉS GONZÁLEZ, CARLOS, Catedrático Asociado de Educación. Ed.D. Western Michigan University.

COSTA, AGNES, Catedrática de Química. M.S., Ed.D. Universidad de Puerto Rico

CRESPO CLAUDIO, YAZMÍN, Catedrática Auxiliar de Diseño. B.D.A., Universidad de Puerto Rico; M.S., Columbia University; MDesS, Harvard University.

CRESPO FERNÁNDEZ, LEILA, Catedrática de Psicología. Ph.D. Universidad de Puerto Rico.

CRUZ RIVERA, YASMINE, Catedrática de Español. B.A. Universidad del Sagrado Corazón; M.A., Ed.D. Universidad de Puerto Rico.

CUBANO MERCADO, MIGUEL, Catedrático de Música. B.A. Universidad de Puerto Rico; M.A. Conservatorio Nacional de Aubervilliers; Diploma de Composición de la Schola Cantorum, Ed.D. Universidad Interamericana de Puerto Rico.

CUÉ GARCÍA, FÉLIX, Catedrático de Economía y Administración de Empresas. B.A., M.A. Universidad Interamericana de Puerto Rico; Ph.D. Oklahoma State University.

DÁVILA ESCOBAR, MARIO, Catedrático Asociado de Mercadeo. B.B.A. Universidad de Puerto Rico; M.B.A. New York University.

DE JESÚS BERRÍOS, MARÍA, Catedrática Asociada de Ciencias de Computadoras. B.S., M.S. Universidad de Puerto Rico.

DE JESÚS ZAVALA, GADDER, Catedrático Asociado de Biología. B.S. Universidad Interamericana de Puerto Rico; M.S. Universidad de Puerto Rico.

DE LA CUÉTARA, RAMÓN, Catedrático de Computadoras. B.S., M.D. Universidad de Puerto Rico.

DELBREY PÉREZ, ALFRED, Catedrático Asociado de Psicología. Ph.D. University of Alabama.

DE LUCA REYES, RENÉE, Catedrática de Español. B.A., M.A. Universidad Interamericana de Puerto Rico; Ph.D. Universidad de Puerto Rico.

DÍAZ APONTE, CARLOS A., Catedrático Asociado de Ciencias de Computadoras. B.S. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico. Ph.D. Universidad del Turabo.

DÍAZ DÍAZ, DAMARITH, Instructora de Enfermería. B.S.N. Universidad de Puerto Rico de Mayagüez; M.P.H. Universidad de Puerto Rico, Recinto de Ciencias Médicas, M.D. Universidad Central del Este, República Dominicana.

DOMENECH DEL PILAR, MICHAEL, Catedrático de Teología. B.A. Universidad de Puerto Rico; M.Div. Seminario Evangélico de Puerto Rico; Ed.M., Ed.D. Teachers College, Columbia University; Ed.D. Universidad de Puerto Rico

EMMANUELLI MUÑIZ, MIRNA, Catedrática de Español. B.S. Pontificia Universidad Católica de Puerto Rico; M.A., Ph.D. Universidad de Puerto Rico.

ESCABÍ, ISABEL, Catedrática de Educación. B.A. M.A. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

ESCOBAR VÁZQUEZ, JOSEFINA, Catedrática Asociada de Educación. B.A., M.Ed. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

ESTRADA PÉREZ, FREDERICK, Catedrático de Psicología. B.A., M.A., Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

FÁBREGAS TROCHE, HILDA L., Catedrática de Biología. B.S., D.M.D. Universidad de Puerto Rico

FERNÓS SAGEBIEN, ANTONIO, Catedrático Auxiliar de Economía. B.A. Finanzas, Universidad Interamericana de Puerto Rico; M.A., Economía. Tufts University; M.A. Economía, Universidad de Puerto Rico.

FLORES MARTÍNEZ, LUIS, Catedrático Asociado de Educación. B.A., M.S., J.D. Universidad Interamericana de Puerto Rico; Ph.D. Walden University.

FONSECA SEPÚLVEDA, CARLOS M., Catedrático Asociado de Administración de Empresas. B.A., M.B.A. Universidad de Puerto Rico, **Ph.D., Universidad Complutense de Madrid, España.**

FRAMBES BUXEDA, ALINE, Catedrática de Ciencias Políticas. B.A. University of Denver; M.A. Johns Hopkins University; Ph.D. Philipps Universität Marburg.

FREYRE, JORGE, Catedrático y Profesor Distinguido de Economía. M.A., Ph.D. Yale University; Doctor en Derecho, Universidad de La Habana.

GARCÍA ARROYO, MATILDE, Catedrática de Inglés y Lingüística. B.A., M.A. Universidad de Puerto Rico; Ed.D. New York University.

GARCÍA DEL TORO, ANTONIO, Catedrático de Español. B.A., M.A., Ph.D. Universidad de Puerto Rico.

GARCÍA, MANUEL, Catedrático Asociado de Matemáticas. B.S. Universidad de Puerto Rico; M.S. University of Illinois.

GARCÍA RAMIREZ, MILDRED, Catedrática Asociada de Español. B.A. Universidad de Puerto Rico; M.A. Middlebury College.

GARZA PONCE DE LEÓN, EDMUNDO, Catedrático Auxiliar de Finanzas. B.S., M.B.A. Universidad de Puerto Rico.

GAYÁ GONZÁLEZ, LILLIAN, Catedrática de Biología. B.S., M.S. Universidad de Puerto Rico; Ph.D. University of Wisconsin.

GODOY VITORINO, FILIPA, Profesor Investigador. Ph.D. Universidad de Puerto Rico

GÓMEZ BERRÍOS, NÉLIDA, Catedrática Asociada de Contabilidad. B.B.A. Universidad de Puerto Rico; M.S. Universidad Mundial.

GONZÁLEZ ACABÁ, DYALMA, Catedrática Asociada de Antropología. B.A. Universidad de Puerto Rico; M.A. State University of New York.

GONZÁLEZ CORDERO, LIVIER I., Catedrático de Biología. B.S.M.T., M.S., Ph.D. Universidad de Puerto Rico.

GONZÁLEZ GONZÁLEZ, ALEIDA I., Catedrática Asociada de Matemáticas. B.A., M.A. Universidad de Puerto Rico.

GONZÁLEZ MARTÍNEZ, ELSA M. Catedrática Auxiliar en Gerencia. B.A., M.A. Universidad Interamericana de Puerto Rico.

GONZÁLEZ NÚÑEZ, GERARDO, Catedrático Auxiliar de Economía. M.A. Universidad de la Habana

GONZÁLEZ VÉLEZ, PEDRO A. Catedrático de Historia. B.A., M.A., Ph.D. Universidad de Puerto Rico.

HADDOCK SANTIAGO, EVELYN, Catedrática Asociada de Ciencias de Computadoras. B.B.A. Universidad de Puerto Rico; M.Ed. Georjía Southern University; M.A. Teachers College, Columbia University

HERNÁNDEZ ACEVEDO, JOSÉ EFRAÍN., Instructor de Ciencias Políticas. B.A., M.P.A. Universidad de Puerto Rico; J.D. Pontificia Universidad Católica de Puerto Rico.

HERNÁNDEZ GONZÁLEZ, PABLO JESÚS. Catedrático Auxiliar de Historia. Doctor en Historia Universidad de Sevilla, España; Licenciatura en Historia. Universidad de La Habana, Cuba.

HERNÁNDEZ LOZANO, DAVID. Catedrático Asociado de Religión. B.S. Universidad de Puerto Rico; M.DIV, Seminario Evangélico de Puerto Rico; M.B.A. Universidad de Puerto Rico

HERNÁNDEZ ROMÁN, DÉBORA, Catedrática Asociada de Español. B.A., M.A. State University of New York; Ph.D. Universidad de Puerto Rico.

HOPKINS MIRANDA, BRENDA. Catedrática Auxiliar. B.A., Conservatorio de Música; M.A., New England Conservatory.

IRVINE BLANCO, ILEANA, Catedrática de Educación. Ph.D. Fordham University.

ITURRONGO BÁEZ, MILAGROS, Catedrática de Sociología. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Doctor en Sociología, Universidad Complutense de Madrid.

JUMAH, AHMAD, Catedrático de Finanzas y Contabilidad. M.B.A. Universidad Interamericana de Puerto Rico; Ph.D. Manchester Business School.

KARMAN FERNÁNDEZ, JUAN CARLOS, Catedrático Asociado de Sistemas Computadorizados de Información Gerencial. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad del Sagrado Corazón; D.B.A. Universidad del Turabo.

KORTRIGHT ROIG, DINAH, Catedrática de Español. B.A., M.Ed. Universidad de Puerto Rico; Ph.D. Universidad Complutense de Madrid.

LEBRÓN DÍAZ, NOEMÍ, Catedrática Asociada de Educación. M.A., Ed.D. Universidad Interamericana de Puerto Rico.

LIANG BETANCOURT, ANGELINE, Catedrática Asociada de Justicia Criminal. B.A. Universidad de Puerto Rico; J.D. Universidad Interamericana de Puerto Rico.

LIZARDI LÓPEZ, MARÍA M., Catedrática de Trabajo Social. M.S.W. Universidad de Puerto Rico; Ph. D. Tulane University.

LLORENS RIVERA, ANTONIO A., Catedrático Asociado de Economía. B.A., M.A. Universidad de Puerto Rico; Ph.D. The Ohio State University.

LOPATEGUI CORSINO, EDGAR, Catedrático Asociado de Educación Física. B.A., Universidad de Puerto Rico; M.A., Adelphi University.

LOPES DA SILVA, JOSÉ A., Catedrático de Filosofía. M.A. Instituto de Educación Superior de Estudios Teológicos, Lisboa, Portugal; M.A. Universidad Interamericana de Puerto Rico; Doctor en Filosofía y Letras, Universidad de Valladolid.

LÓPEZ RAMÍREZ, NORMA I., Catedrática de Biología. B.S., M.Ed. Universidad de Puerto Rico; Ph.D. The Pennsylvania State University.

LÓPEZ SIERRA, HÉCTOR, Catedrático de Sociología. B.B.A., M.A. Universidad de Puerto Rico; M.Div. Seminario Evangélico de Puerto Rico; Th.M. Lutheran School of Theology; Ph.D. Graduate Theological Foundation; Ph.D. Universidad de Puerto Rico.

LUGO RODRÍGUEZ, GILBERTO, Catedrático Asociado de Economía. B.A., M.P.A. Universidad de Puerto Rico.

MALDONADO MOLL OLGA, Catedrática de Sistemas de Oficina. B.B.S. Universidad de Puerto Rico; M.B.A. New York University; Ph.D. Argosy University.

MARICHAL LUGO, MARGARITA, Catedrática Asociada de Educación Física. B.A. Universidad de Puerto Rico; M.Ed. University of Houston.

MARRERO DÍAZ, CARMEN. Instructora de Mercadeo, B.B.A., M.B.A. Universidad Interamericana de Puerto Rico.

MARTÍN VÉLEZ, FRANCISCO, Catedrático de Educación. Ph.D. Universidad Complutense de Madrid.

MARTÍNEZ CALIMANO, ENRIQUE, Catedrático Asociado de Contabilidad. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad Metropolitana; D.B.A. Universidad Argosy, Florida.

MARTÍNEZ FALCÓN, YOLANDA, Catedrática Asociada de Educación Física. M.A. Michigan State University; Ed.D. Universidad Interamericana de Puerto Rico.

MARTÍNEZ RUIZ, JOSÉ, Catedrático Asociado de Biología. B.S., M.S. Universidad de Puerto Rico.

MARTÍNEZ SANTOS, WILFRED, Catedrático Asociado de Educación Física. B.A. Universidad de Puerto Rico; M.Ed. University of Cincinnati.

MATEO ROMAN, EILEEN, Catedrática Asociada de Enfermería. B.S.N. Pontificia Universidad Católica de Puerto Rico; M.S.N. Universidad de Puerto Rico.

MEDINA RODRÍGUEZ, FREDDY R., Catedrático de Biología. B.S., M.S. Universidad de Puerto Rico; Ph.D. University of Cincinnati.

MEJÍA FLORES, ANNA, Catedrática de Inglés y Lingüística. B.A., M.A. City University of New York, Hunter College; M.A. Universidad Interamericana de Puerto Rico; Ph.D. New York University.

MEJÍAS TORRES, IDA, Catedrática Asociada de Tecnología Médica. B.S., M.T. (ASCP), M.S. Universidad Interamericana de Puerto Rico; Ph.D. Universidad de Puerto Rico.

MERCADO ORTIZ, SONIA, Catedrática Asociada de Contabilidad. M.B.A. Universidad Interamericana de Puerto Rico.

MEZO ROMERO, THERESA, Catedrática Asociada de Inglés y Lingüística. B.A. Universidad de Puerto Rico; M.A. New York University.

MILÁN OLIVIERI, ARLINE, Catedrática de Recursos Humanos. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; M.A. New York University; Ph.D. Walden University.

MIRANDA MORALES, DELIA, Catedrática Asociada de Administración de Empresas. B.A. Universidad de Puerto Rico; M.S. Purdue University.

MIRANDA ORTIZ, MARÍA T., Catedrática de Tecnología Médica. B.S., Ph.D., Universidad de Puerto Rico; M.D. Universidad Autónoma de Barcelona.

MIRANDA RODRÍGUEZ, ELIZABETH, Catedrática de Trabajo Social. M.S.W., Universidad de Puerto Rico; Ph.D. Ohio State University.

MIRANDA RUIZ, JAIME, Catedrático Auxiliar de Matemáticas. B.S. Universidad del Sagrado Corazón; M.S. Universidad de Puerto Rico.

MORENO PÉREZ, SANDRA, Catedrática Auxiliar de Tecnología Médica. B.S., M.T. (ASCP) Universidad de Puerto Rico; M.S. Universidad Interamericana de Puerto Rico.

MUÑIZ GONZÁLEZ, ANA A. Catedrática Asociada de Psicología. B.A., M.A. Universidad Interamericana de Puerto Rico; Psy.D. Universidad Carlos Albizu.

NAZARIO LUCCA, CARMEN, Catedrática Auxiliar de Trabajo Social. M.S.W. Virginia Commonwealth University of Social Work.

NUÑEZ VANGA, HAYDÉE, Catedrática Asociada de Administración de Empresas. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico.

NURSE ALLENDE, LESTER I., Catedrático Asociado de Psicología. B.A. Universidad Interamericana de Puerto Rico; M.S. Instituto de Psicología de Puerto Rico.

OLIVELLA BENIAMINO, CARMEN A., Catedrática de Salud y Educación Física. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ph.D. Florida State University.

OLIVER, JOSÉ F., Catedrático Asociado de Estadística. B.S. Universidad de Puerto Rico; M.B.A. Rutgers University.

OLIVER RUSSO, ANN MARIE, Catedrática de Educación. B.A. College of Saint Elizabeth; M.Ed. Pontificia Universidad Católica de Puerto Rico; M.A., Ed.D. Universidad Interamericana de Puerto Rico.

OLIVIERI GÓMEZ, LUIS, Catedrático Asociado de Música. M.S.M. Boston University; M.A. en Divinidad, Seminario Evangélico de Puerto Rico.

OQUENDO DE JESÚS, CARMEN A., Catedrática de Biología. B.S. Universidad de Puerto Rico; M.S., Ph.D. Louisiana State University.

ORTIZ BERMÚDEZ, MYRNA, Catedrática de Inglés y Lingüística. B.A., M.A. Universidad de Puerto Rico; Ed.D. New York University; M.A. en Divinidad, Seminario Evangélico de Puerto Rico.

ORTIZ GUEVARA, MAGDALENA, Catedrática Asociada de Administración de Empresas. B.B.A., M.B.A. Universidad de Puerto Rico; M.B.A., J.D. Universidad Interamericana de Puerto Rico.

ORTIZ VIDAL, VÍCTOR, Catedrático de Psicología. B.B.A. Universidad de Puerto Rico; M.S., Ph.D. Centro Caribeño de Estudios Posgraduados.

OTERO GONZÁLEZ, LUIS, Catedrático Asociado de Sistemas Computadorizados de Información Gerencial. B.S.E.E. Universidad de Puerto Rico; M.I.B.A. Nova Southeastern University.

PADILLA MORALES, CARMEN C., Catedrática Asociada de Enfermería. B.S.N. Pontificia Universidad Católica de Puerto Rico; M.S.N. Universidad de Puerto Rico.

PAGÁN CABRERA, CARMEN JULIA, Catedrática Asociada de Teología. B.S. Universidad de Puerto Rico; M.Div. Seminario Evangélico de Puerto Rico; Ed.D. Columbia University

PANDO, LAURA, Catedrática de Inglés y Lingüística. B.A. Universidad de Puerto Rico; M.A., Universidad Mundial; Ph.D. Forham University.

PARED ESPINAL, NERCY, Catedrática Asociada de Matemáticas. B.S. Universidad Interamericana de Puerto Rico; M.A. Universidad de Puerto Rico.

PELEGRINA, DAGMAR, Catedrática Auxiliar de Biología. B.S., M.S. Universidad de Puerto Rico.

PÉREZ CARTAGENA, ERNESTO, Catedrático Asociado de Educación. B.A. Universidad Interamericana de Puerto Rico; M.A. Universidad de Puerto Rico; Ph.D. University of Connecticut.

PÉREZ DEL VALLE, MARÍA A., Catedrática de Español. B.A., M.A., Ph.D., Universidad de Puerto Rico.

PÉREZ QUIÑONES, LUZ I., Catedrática de Historia. B.A. Universidad de Puerto Rico; M.A. University of Bridgeport; Doctora en Filosofía y Letras, Universidad de Valladolid.

PÉREZ ROLÓN, JORGE, Catedrático de Música. M.M. Manhattan School of Music; Ed.D. Columbia University.

PIAZZA VÁZQUEZ, AWILDA, Catedrática Asociada de Enfermería. B.S.N. Pontificia Universidad Católica de Puerto Rico; M.S.N. Universidad de Puerto Rico.

PIQUÉ, ARMAND L., Catedrático Asociado de Economía. B.A. Universidad Interamericana de Puerto Rico; M.S. Iowa State University.

PONS DE JESÚS, RICARDO, Catedrático Auxiliar de Música. B.F.A. City College of New York; B.A. Berklee College of Music; M.M. Graduate School of Music, University of Miami.

POUPART CUADRADO, MIGUEL, Catedrático de Justicia Criminal. B.A. Universidad de Puerto Rico; M.A., Universidad Interamericana de Puerto Rico; Ph.D. Florida State University.

PRADO VALDESUSO, ALBERTO, Catedrático Auxiliar de Ciencias de Computadoras. B.S.E.E. Universidad de Puerto Rico; M.S. Universidad Interamericana de Puerto Rico.

PUIG CAMPOS, RAQUEL, Catedrática Auxiliar de Inglés y Lingüística. B.A., M.A., Ph.D. Universidad de Puerto Rico.

QUINTANA RIVERA, HILDA E., Catedrática de Español. B.A. Universidad de Puerto Rico; M.A., Ph.D. State University of New York.

QUIÑONES PÉREZ, PALMIRA, Catedrática Asociada de Justicia Criminal. B.A. Universidad de Puerto Rico; J.D., M.A. Universidad Interamericana de Puerto Rico.

RESTO DEL VALLE, ARNOLD F, Instructor. B.S.N., Universidad Interamericana de Puerto Rico. M.S.N. Universidad del Turabo.

REYES SOLERO, MYRNA, Catedrática Asociada de Contabilidad. B.B.A., M.B.A. Universidad de Puerto Rico.

RÍOS GONZÁLEZ, SARA C., Catedrática Asociada de Educación Física. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

RIVAS MORALES, ANA MARÍA, Catedrática Asociada de Relaciones Laborales. B.A., M.P.A. Universidad de Puerto Rico.

RIVERA BURGOS, LYDIA, Catedrática Asociada de Inglés y Lingüística. M.A. Universidad Interamericana de Puerto Rico.

RIVERA CARRASQUILLO, ELBA I., Catedrática de Matemáticas. B.A., M.Ed. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

RIVERA DE MÁRQUEZ, ELBA, Catedrática de Educación Comercial. B.S. City University of New York; M.A. Universidad Interamericana de Puerto Rico; Ph.D. New York University.

RIVERA GALINDO, CARLOS R., Catedrático Auxiliar de Economía. B.A., M.P.A. Universidad de Puerto Rico.

RIVERA RODRÍGUEZ, ÁNGEL, Catedrático Asociado de Economía. B.A. Universidad de Puerto Rico; M.A. Harvard University.

RIVERA ROSA, NITZA., Catedrática Auxiliar de Tecnología Médica. B.S., M.T. (ASCP) Universidad de Puerto Rico, M.S., Universidad Interamericana de Puerto Rico.

RIVERA SANTOS, ARNALDO, Catedrático Auxiliar de Música. B.A. Berklee College of Music; M.M. Graduate School of Music, University of Miami.

RIVERA VEGA, IVONNE, Catedrática Auxiliar de Educación. B.A., M.A. Universidad de Puerto Rico.

RIVERO VERGNE, ALICIA, Catedrática de Psicología. B.A., M.Ed. Universidad de Puerto Rico; Ph.D. Michigan State University.

ROBLES ORTIZ, IVÁN, Catedrático Asociado de Administración de Empresas. B.B.A. Universidad de Puerto Rico; M.B.A. Memphis State University.

ROBLES ORTIZ, MARÍA DE LOS A., Catedrática Asociada de Contabilidad. M.B.A. Universidad Interamericana de Puerto Rico.

RODRÍGUEZ AHUMADA, JOSÉ., Catedrático Asociado de Matemáticas. B.A. City College of New York; M.A. New York University; M.A. Universidad de Puerto Rico.

RODRÍGUEZ APONTE, DALIA, Catedrática de Español. B.A. Universidad de Puerto Rico; M.A., Ph.D. Princeton University.

RODRÍGUEZ DE MORA, CARMEN, Catedrática de Español. Bachiller en Letras, Universidad de Valladolid; Ph.D. Universidad Central de Madrid.

RODRÍGUEZ DEL TORO, VIVIAN, Catedrática de Psicología. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ph.D. Seton Hall University.

RODRÍGUEZ GINORIO, ALEX. Instructor de Administración de Empresas. B.A., M.B.A. Universidad Interamericana de Puerto Rico.

RODRÍGUEZ ORTIZ, MARIA D., Instructora. B.S.N. Universidad Interamericana de Puerto Rico; M.S.N. Universidad de Puerto Rico; MD, University of Health Science, Antigua.

RODRIGUEZ PONSAS, ISMAEL, Catedrático Auxiliar de Música. B.A. Berklee College of Music; M.M. Graduate School of Music, University of Miami.

RODRÍGUEZ SÁNCHEZ, JESÚS, Catedrático de Teología. B.A. Universidad Mundial de Puerto Rico; M.Div. Seminario Evangélico de Puerto Rico; D.Min, Northern Baptist Theological Seminary; Ph.D. Garrett Evangelical Theological Seminary.

RODRÍGUEZ VEGA, MYRNA, Catedrática de Arte. B.A. Universidad de Puerto Rico; M.A. New York University.

ROE, ALICIA, Catedrática de Ciencias Terrestres. B.A. Universidad de Puerto Rico; M.A. Indiana University; Ph.D. University of Miami.

ROMÁN DE MARTÍNEZ ANA L., Catedrática de Administración de Empresas y Educación Comercial. B.A., M.A. New York University; M.A. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

ROSA SOBERAL, ROSALIE, Catedrática de Trabajo Social. B.A., M.S.W. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

ROSADO LOZADA, IZANDER, Catedrático de Química. B.S., Ph.D. Universidad de Puerto Rico.

ROSARIO ALVAREZ, NICOLÁS, Catedrático de Negocios Internacionales. B.B.A. Universidad de Puerto Rico; M.B.A., Ph.D. Universidad Interamericana de Puerto Rico.

ROSAS DE CANCIO, MARTA., Catedrática Asociada de Matemáticas. B.S., M.A., Universidad de Puerto Rico.

RUBERO SANTIAGO, MARÍA D., Catedrática de Educación. B.A., M.A. Universidad Interamericana de Puerto Rico; Ph.D. Seton Hall University.

RUIZ MERCADO, ÁNGEL L., Catedrático de Economía. B.A. Universidad de Puerto Rico; M.A. Universidad de California en Berkeley; Ph.D. Universidad de Gales.

SANABRIA RÍOS, DAVID, Profesor Investigador. Ph.D. Universidad de Puerto Rico.

SÁNCHEZ DE VILLAMIL, OLGA, Catedrática de Inglés y Lingüística. B.A., M.A. Universidad de Puerto Rico; Ph.D. Fordham University.

SANTIAGO CENTENO, ZORAIDA, Catedrática de Psicología. M.S., Ph.D. Centro Caribeño de Estudios Postgraduados.

SANTIAGO PÉREZ, JAIME., Catedrático Asociado de Psicología. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ph.D. Universidad de Puerto Rico.

SANTIAGO RODRÍGUEZ, ALICE, Catedrática Asociada de Enfermería. B.S.N.; M.S.N. Hunter College, City University of New York.

SEGUÍ SOTOMAYOR, SAMUEL, Catedrático Asociado de Administración de Empresas. B.A., M.S.W. Universidad de Puerto Rico; J.D. Universidad Interamericana de Puerto Rico.

SOTO GONZÁLEZ, MILDRED, Catedrática Asociada de Sistemas de Oficina. B.S. Universidad de Puerto Rico; M.S. State University of New York.

SOTO RODRÍGUEZ, DÉBORAH, Instructora de Enfermería. B.S.N., Universidad de Puerto Rico; M.S.N. Universidad de Puerto Rico.

SOUTO LÓPEZ, OLGA, Catedrática Auxiliar de Español. B.A. Universidad de Puerto Rico; M.A. New York University.

SUBIRATS CAMARAZA, PEDRO, Catedrático Asociado de Filosofía. B.Ed., B.A., M.A. Universidad de Puerto Rico; M.Psy, Universidad Nacional Autónoma de México; M.F.L., Universidad Iberoamericana..

SUMAZA LABORDE, IRENE, Catedrática de Psicología. B.A. Universidad de Puerto Rico; M.S. Instituto Psicológico de Puerto Rico; Ed.D. Temple University.

TAMARGO LÓPEZ, MARÍA I., Catedrática de Español. B.A. Universidad Interamericana de Puerto Rico; M.A., Ph.D. The Johns Hopkins University.

TEJADA VEGA, JOSEFINA V., Catedrática Asociada de Educación. B.A. Colegio Universitario del Sagrado Corazón; M.A. New York University ; Ph.D. Universidad Nacional de Educación a Distancia, Madrid, España.

TEXIDOR CARMONA, MIGDALIA M., Catedrática Auxiliar de Tecnología Médica. B.A., Certificado en Tecnología Médica Universidad de Puerto Rico M.T. (ASCP); M.A. New York University.

TIRADO MARTÍNEZ, ROSA, Catedrática Asociada de Matemáticas. B.A., M.Ed. Universidad de Puerto Rico.

TORRES MÁRQUEZ, MANUEL, Catedrático de Sociología. B.A., M.A. Universidad de Puerto Rico; Doctor en Sociología, Universidad Complutense de Madrid.

TORRES RIVERA, ERNESTO A., Catedrático Asociado de Biología. B.S., M.S. Universidad de Puerto Rico.

TORRES VÉLEZ, YOLANDA. Catedrática Auxiliar de Enfermería. B.S. University of Dayton; B.S.N.. Universidad Interamericana de Puerto Rico; M..S.N. Universidad Metropolitana.

TOSADO ACEVEDO, RAFAEL, Catedrático Asociado de Tecnología Médica. B.S., M.S., Ph.D, Universidad de Puerto Rico.

VALLÉS SIFRE, JOSÉ R., Catedrático Asociado de Ciencias de Computadora. B.B.A. West Virginia University; M.A. Universidad Interamericana de Puerto Rico.; Ph.D. Capella University.

VAN TRIESTE, ROBERT, Catedrático de Inglés y Lingüística. B.S., Westchester University; M.A. Universidad de Puerto Rico; Ph.D. New York University.

VARAS LÓPEZ, MILAGROS, Catedrática Asociada de Matemáticas. B.S., M.Ed. Tulane University; Ed.D. Universidad Interamericana de Puerto Rico.

VARONA LAVERNIA, MAGDALENA, Catedrática Auxiliar de Arte. B.A. Universidad Interamericana de Puerto Rico; M.A. School of Arts Institute of Chicago.

VÁZQUEZ DÁVILA, NYDIA, Catedrática Asociada de Educación. B.A. Universidad de Puerto Rico; M.A. New York University; Ed.D, Universidad Interamericana de Puerto Rico.

VÁZQUEZ, GENEROSA, Catedrática de Educación. B.S. Universidad de Puerto Rico; M.S. Pennsylvania State University; Ph.D. New York University.

VÁZQUEZ MEDINA, JUAN H., Catedrático de Educación. Ph.D. Florida State University.

VÁZQUEZ ROSADO, MARÍA DE LOS A., Catedrática Asociada de Psicología. B.A. Universidad de Puerto Rico; M.S. Centro Caribeño de Estudios Posgraduados; Ph.D. Universidad de Puerto Rico.

VEGA DE VARONA, JOSSIE, Catedrática Asociada de Matemáticas. B.S., M.S. Universidad de Puerto Rico.

VEGA LOZADA, FREDRICK, Catedrático de Negocios Internacionales. J.D. Universidad de Puerto Rico; M.B.A. Long Island University; LL.M. Universidad de Strathclyde.

VÉLEZ CRUZ, FRANCISCO, Catedrático Asociado de Educación. B.A., M.A. Universidad Interamericana de Puerto Rico; M.Ed. University of Cincinnati; Ed.D. Universidad Interamericana de Puerto Rico.

VÉLEZ OYOLA, ÁNGEL, Catedrático Asociado de Teología. B.A. Universidad del Turabo; M.A. Centro de Estudios Avanzados de Puerto Rico y el Caribe; M.A. Barry University; Th.M. Gordon Conwell Theological Seminary; C.A.E.S. Boston College; Ed.D. Graduate Theological Foundation; Doctor en Historia de América, Universidad de Sevilla; Pós-Doutorado, Pontificia Universidade Católica do Ríó de Janeiro.

VÉLEZ RODRÍGUEZ, CARMEN, Catedrática Asociada de Inglés y Lingüística. B.A., M.Ed. Universidad de Puerto Rico.

VÉLEZ SERRA, VIDAL, Catedrático de Educación. Ph.D. University of Connecticut.

VILÁ BARNÉS, GLADYS, Catedrática de Español. B.A. Universidad de Puerto Rico; M.A. New York University; Ph.D. Universidad de Puerto Rico.

VILA OTERO, FERNANDO, Catedrático Asociado de Educación Física. B.A., M.A. Universidad Interamericana de Puerto Rico.

VIVES AMENGUAL, EVANGELINA, Catedrática de Contabilidad. B.B.A. Universidad de Puerto Rico; M.B.A., Ph.D. New York University; J.D. Brooklyn Law School.

WAYLAND, MARILINA, Catedrática Asociada de Matemáticas. B.A. Universidad de Puerto Rico; M.S. Louisiana State University.

WILLIAMS ANDINO, MARÍA, Catedrática Auxiliar de Educación. B.A. Universidad de Puerto Rico; M.A. New York University; Ed.D. Universidad Interamericana de Puerto Rico.

ZAYAS PUIG, SONIA, Catedrática Auxiliar de Trabajo Social. B.A. Pontificia Universidad Católica de Puerto Rico; M.S.W. Universidad de Puerto Rico.

### **Faculty Ponce Campus**

ADAMES SOTO, RICARDO, Catedrático Auxiliar de Radiología. A.A.S., M. Ed. Universidad Interamericana de Puerto Rico; B.S. Universidad del Este.

ÁLVAREZ PEÑA, JACQUELINE, Catedrática de Recursos Humanos y Gerencia. B.S., M.B.A., Ph.D. Pontificia Universidad Católica de Puerto Rico.

ÁLVAREZ TRUJILLO, HÉCTOR, Catedrático Asociado de Historia. B.A. Universidad Interamericana de Puerto Rico; M.A. City College of New York.

ASTACIO SEPÚLVEDA, LOURDES M., Instructora de Enfermería, B.S.; MSN Pontificia Universidad Católica Puerto Rico.

BAHAMONDE RODRÍGUEZ, MANUEL, Catedrático Asociado de Religión y Psicología. B.A. Universidad de Puerto Rico; M.Div. Seminario Evangélico de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ph.D., Pontificia Universidad Católica de Puerto Rico.

BALZAC CARPENA, RAFAEL, Catedrático Asociado de Economía y Estadísticas. B.A., M.A. Universidad Interamericana de Puerto Rico.

BATIZ ORTIZ, RENÉ, Catedrático Auxiliar de Mercadeo. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico.

BURGOS NIÑO, JOSÉ H., Catedrático Asociado de Finanzas y Contabilidad. B.A., M.B.A. Universidad Interamericana de Puerto Rico.

CARABALLO PAGÁN, OMAIRA, Catedrática Asociada Estudios a Distancia. B.A., M.A. Universidad Interamericana de Puerto Rico; Ed.D. Nova Southeastern University

CARATINI SOTO, MILAGROS, Catedrática de Inglés. B.A. Universidad Interamericana de Puerto Rico; M.Ed. Pontificia Universidad Católica de Puerto Rico; Ph.D. New York University.

CEDEÑO FELICIANO, CÉSAR A., Catedrático Auxiliar de Educación. B.A. Universidad de Puerto Rico; M.A., Ed.D. Pontificia Universidad Católica de Puerto Rico.

CEPEDA BORRERO, JOSÉ R., Catedrático Auxiliar de Justicia Criminal. B.A., J.D. Pontificia Universidad Católica de Puerto Rico.

CLAMPITT DUNLAP, SHARON, Catedrática de Inglés. B.A., M.A. Universidad Interamericana de Puerto Rico; Ed.D. Universidad de Puerto Rico.

COLÓN ACOSTA, VILMA E., Catedrática de Biología. B.S., M.Ed. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

COLÓN ALICEA, HEYDI, Instructora de Terapia Ocupacional. B.S. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

COLÓN ROSA, HÉCTOR W., Catedrático Asociado de Matemáticas. B.S., M.S. Universidad de Puerto Rico; Ed.D. Universidad de Puerto Rico.

CORDERO MORALES, EUNICE, Catedrática Auxiliar de Mercadeo. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; D.B.A. Pontificia Universidad Católica de Puerto Rico.

CORDOVES AVILÉS, JOSÉ L., Catedrático Auxiliar de Educación. B.A. Universidad de Puerto Rico; M.A. Caribbean University.

CORREA BERNIER, SANTY, Catedrática Asociada de Educación. B.A. Pontificia Universidad Católica de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

CORREA LÓPEZ, ELSA, Catedrática Auxiliar de Gerencia de Hoteles. B.B.A. Pontificia Universidad Católica de Puerto Rico; MTHM Temple University.

CRUZ MORALES, SELMA, Catedrática Auxiliar de Español. B.A. Universidad de Puerto Rico; M.A. Pontificia Universidad Católica de Puerto Rico.

DE LAS CASAS GIL, ANTONIO. Catedrático Auxiliar de Física. M.A. Universidad de Zaragoza, España.

DE LEÓN FORTIER, LUIS, Instructor de Física y Matemáticas. B.S., J.D. Pontificia Universidad Católica de Puerto Rico.

DEL CANTO ROZAS, HUMBERTO, Catedrático Auxiliar de Química. Licenciado en Química, Universidad de Chile.

DELGADO CARO, GIOVANNI, Catedrático Auxiliar de Computadoras. ASBA, B.C.P., M.S. EDP College.

DÍAZ FIGUEROA, IVONNE, Catedrática Asociada de Inglés. B.S., M.Ed. Pontificia Universidad Católica de Puerto Rico.

DÍAZ FIGUEROA, LOURDES, Catedrática Auxiliar de Biología. B.S. Universidad Interamericana de Puerto Rico; M.S. Universidad de Puerto Rico.

DÍAZ GONZÁLEZ, ENRIQUE, Catedrático Auxiliar de Matemáticas. M.S. University of Illinois.

DÍAZ ZAYAS, DÁMARIS, Catedrática Auxiliar de Biología. B.S., M.S. Universidad de Puerto Rico.

DONCEL VÁZQUEZ, MARÍA M., Catedrática de Estudios Hispánicos. B.A., M.A. Universidad de Puerto Rico; Ph.D. Universidad de Valladolid, España.

FELICIANO QUIÑONES, BERNARDETTE, Catedrática de Matemáticas. B.S., M.A. Pontificia Universidad Católica de Puerto Rico; M.S. Salem State College; Ed.D. Teacher's College, Columbia University.

FERRER TORRES, EDMY J., Catedrática Asociada de Ciencias Forenses y Química. M.S., Ph.D. Universidad de Puerto Rico.

GALARZA RIVERA, MARÍA P., Catedrática Asociada de Recursos Humanos y Gerencia. B.S.S. Universidad de Puerto Rico; M.B.A. Pontificia Universidad Católica de Puerto Rico; D.B.A. Argosy University, Sarasota.

GARCÉS LLANTÍN, JOSÉ H., Catedrático Auxiliar de Radiología. A.S, B.S., M.S. Universidad Interamericana de Puerto Rico.

GARCÍA MÁRQUEZ, JOSÉ V., Instructor de Ciencias Ópticas. A.S. Universidad del Este, A.O.S. Puerto Rico Tech Junior College.

GONZÁLEZ CHÉVERE, ORLANDO, Catedrático Asociado de Educación. B.A., M.A. Universidad del Sagrado Corazón; Ed.D. Pontificia Universidad Católica de Puerto Rico.

GONZÁLEZ HURTADO, RAQUEL, Instructora de Terapia del Habla y Lenguaje. A.S., B.S. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; M.S. Universidad Carlos Albizu.

HEREDIA TORRES, MARISEL, Instructora de Contabilidad. B.B.A. Universidad Interamericana de Puerto Rico; J.D. Pontificia Universidad Católica de Puerto Rico.

JUSINO CRUZ, LIDIS L., Catedrática Auxiliar de Justicia Criminal. B.A. Universidad de Puerto Rico; M.Ed., J.D. Pontificia Universidad Católica de Puerto Rico.

LABOY VÉLEZ, LILLIAM, Catedrática Asociada de Mercadeo. B.B.A., M.B.A. Universidad de Puerto Rico; D.B.A. Argosy University.

LÓPEZ TORRES, BENJAMÍN, Catedrático Asociado de Enfermería. B.S.N., M.S.N., Ph.D. Pontificia Universidad Católica de Puerto Rico.

LOYSELLE MIRÓ, ANNIVETTE, Catedrática de Español. B.A. Universidad de Puerto Rico; M.A. New York University; Ph.D. Universidad de Valladolid, España.

LUGO VECCHINI, RAQUEL, Catedrática Auxiliar de Computadoras. B.A. Universidad de Puerto Rico; M.B.A. Universidad del Sagrado Corazón.

MALDONADO SANTIAGO, VÍCTOR, Catedrático Auxiliar de Español. B.A. Universidad de Puerto Rico; M.A. Caribbean University; Ph. D. Centro de Estudios Avanzados de Puerto Rico y del Caribe.

MÁRQUEZ ESPINET, DELIA, Catedrática Asociada de Administración de Sistemas de Oficina. B.A. Universidad de Puerto Rico; M.A. New York University.

MATOS ORTIZ, VILMA E., Catedrática Auxiliar de Inglés. B.A., M.A. Universidad Interamericana de Puerto Rico.

MATTEI COLÓN, VIVIEN, Catedrática Auxiliar de Comunicaciones. B.S. Pontificia Universidad Católica de Puerto Rico; M.A. Ball State University.

MATTEI RODRÍGUEZ, LUCAS, Catedrático Asociado de Historia. B.A. Pontificia Universidad Católica de Puerto Rico; M.A. Centro de Estudios Avanzados de Puerto Rico y El Caribe; Ph.D. Universidad de Valladolid, España.

MÉNDEZ FERNÁNDEZ, ROLANDO J., Instructor de Relaciones Públicas. B.B.A., M.A. Universidad del Sagrado Corazón.

MIRANDA CHAMORRO, MARY J., Catedrática Auxiliar de Radiología. B.A. Universidad Interamericana de Puerto Rico; M.Ed. Pontificia Universidad Católica de Puerto Rico.

MIRANDA TORRES, NEYSHA. Catedrática Auxiliar de Terapia Física. B.S.P.T. Universidad de Puerto Rico; M.P.T. Loma Linda University; D.P.T. Boston University.

MUÑIZ RIVERA, EDGARDO L., Catedrático Asociado de Sistemas de Información. B.B.A., D.B.A. Pontificia Universidad Católica de Puerto Rico; M.B.A. Universidad del Sagrado Corazón.

MUÑOZ RIBAS, ANA C., Instructora de Inglés. M.A. Universidad de Texas en San Antonio.

NAVIA ANTEZANA, BEATRIZ, Catedrática Auxiliar de Educación. Licenciada Universidad de Oriente, Cumaná, Venezuela; M.A. Universidad Nacional Autónoma de México.

NAZARIO MARTÍNEZ, HILDA G., Catedrática Asociada de Enfermería. B.S.N. Pontificia Universidad Católica de Puerto Rico; B.B.A. Universidad Interamericana de Puerto Rico; M.S. University of Maryland.

OLIVERAS MARTÍNEZ, CARLOS, Catedrático Asociado de Física y Matemáticas. B.S. Universidad de Puerto Rico; M.S. Oregon State University.

OQUENDO SOTO, IRAIDA, Instructora de Terapia Ocupacional. B.S. Universidad de Puerto Rico; M.F.C.M. University of Phoenix.

ORTIZ RIVERA, EILEEN, Catedrática Asociada de Comercio Internacional y Mercadeo. B.B.A., Ph.D. Universidad Interamericana de Puerto Rico; M.B.A. Texas Agronomy and Management International University.

PAGÁN ROBLES, ÁNGEL R., Catedrático Auxiliar de Religión. B.A. Universidad Central de Bayamón; M.A. Cleveland State University.

PÉREZ MATOS, IVETTE, Catedrática Auxiliar de Educación. B.A. Universidad Interamericana de Puerto Rico; M.A. University of Phoenix; Ed.D. Pontificia Universidad Católica de Puerto Rico.

PÉREZ MIRANDA, MIGDALIA, Catedrática de Español. B.A., M.A., Ed.D. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

PETTY, RAY A., Catedrático de Educación. B.S. Springfield College; M.Ed. University of Hartford; Ed.D. Nova University.

PLANCHART MÁRQUEZ, ORLANDO, Catedrático de Matemáticas. Licenciado en Educación, Universidad de Oriente, Venezuela; M.S. Instituto Politécnico Nacional de México; Ph.D. Universidad Autónoma de Morelos, México.

QUILICHINI PAZ, JEANNETTE, Catedrática Auxiliar de Inglés. B.A., M.Ed. Pontificia Universidad Católica de Puerto Rico.

RAMÍREZ DOMENECH, JOSÉ, Catedrático Auxiliar de Biología, Botánica y Ecología. B.S. Universidad de Puerto Rico; Ph. D. Louisiana State University at Baton Rouge.

RAMÍREZ MELLA, JENNIE T., Catedrática de Biología. B.S., M.S., Ph.D. Universidad de Puerto Rico.

RÍOS GONZÁLEZ, ÁNGEL M., Catedrático de Ciencias Ambientales. B.S., M.S. Universidad de Puerto Rico; Ph.D. State University of New York.

RIVERA APONTE, ANA I., Catedrática Auxiliar de Enfermería. B.S.N., M.S.N. Pontificia Universidad Católica de Puerto Rico.

RIVERA APONTE, RITA E., Catedrática Asociada de Administración de Sistemas de Oficina. B.S., M.Ed. Pontificia Universidad Católica de Puerto Rico; M.A. New York University.

RIVERA DÍAZ, PABLO I., Catedrático Asociado de Biología. B.S., M.S. Universidad de Puerto Rico.

RIVERA GONZÁLEZ, ELBA, Instructora de Enfermería. M.S. Pontificia Universidad Católica de Puerto Rico.

RIVERA GONZÁLEZ, KATHERINE, Catedrática Auxiliar de Terapia Física. B.S. Universidad de Puerto Rico; M.S. Loma Linda University; D.P.T. Boston University.

RIVERA LÓPEZ, GERARDO, Catedrático Auxiliar de Enfermería. B.S.N., M.S.N. Pontificia Universidad Católica de Puerto Rico.

RIVERA MARTÍNEZ, YVETTE, Catedrática Auxiliar de Matemáticas. B.A. Pontificia Universidad Católica de Puerto Rico; B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

RIVERA MONTALVO, DIANA, Catedrática Auxiliar de Finanzas. B.A., M.A. Universidad Interamericana de Puerto Rico; Ed.D. Nova Southeastern University.

RIVERA VEGA, LUZ M., Catedrática de Matemáticas. B.S., M.Ed. Pontificia Universidad Católica de Puerto Rico; M.S. Salem State College, Massachusetts; Ed.D. Teachers College, Columbia University.

RODRÍGUEZ PRÍNCIPE, HERMINIO, Catedrático de Contabilidad. B.B.A., M.B.A. Pontificia Universidad Católica de Puerto Rico; D.B.A. Argosy University.

RODRÍGUEZ RODRÍGUEZ, ALBERTO, Catedrático Asociado de Inglés. B.A., M.Ed. Pontificia Universidad Católica de Puerto Rico; Ed.D. Nova Southeastern University.

ROSADO CAMACHO, NANCY, Catedrática Asociada de Filosofía. B.A., M.A. Universidad de Puerto Rico; Ph.D. Centro de Estudios Avanzados de Puerto Rico y el Caribe.

ROSARIO TORRES, ISABEL, Catedrática Auxiliar de Justicia Criminal. B.A. Pontificia Universidad Católica de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

SANTIAGO MELÉNDEZ, DELMA O., Catedrática Auxiliar de Historia. B.A., M.A. Universidad de Puerto Rico; Ph.D. Universidad Interamericana de Puerto Rico.

SEGARRA DE RODRÍGUEZ, ALMA, Catedrática Asociada de Administración de Sistemas de Oficina. B.S.S. Pontificia Universidad Católica de Puerto Rico; M.A. New York University.

SIGMANN BAKER, ERICA, Catedrática Auxiliar de Inglés. B.A., M.Ed., University of Wisconsin.

SOTO COLÓN, NAHIR E., Catedrática Asociada de Ciencias Ópticas. B.S., O.D. Universidad Interamericana de Puerto Rico.

TEISSONNIERE ORTIZ, ARNALDO, Catedrático Asociado de Recursos Humanos. B.A., M.P.A. Universidad de Puerto Rico; J.D. Pontificia Universidad Católica de Puerto Rico; Doctorado en Derecho Civil Universidad de Valladolid, España.

TORO MARTÍNEZ, RADAMÉS, Catedrático Auxiliar de Computadoras. B.B.A., M.B.A. Pontificia Universidad Católica de Puerto Rico.

TORRES CRUZ, ELBA, Catedrática de Español. B.A., M.A. Pontificia Universidad Católica de Puerto Rico; Ph.D. Universidad de Valladolid, España.

TORRES MORALES, RAMÓN, Catedrático Asociado de Negocios Internacionales. B.S. Pontificia Universidad Católica de Puerto Rico; M.B.A. Florida Institute of Technology; M. S. California State University; D.B.A. Pontificia Universidad Católica de Puerto Rico.

TORRES NAZARIO, MARCOS, Catedrático Asociado de Educación y Matemática. B.A., M.A., Ed.D. Universidad Interamericana de Puerto Rico.

TORRES SANTIAGO, MADELINE, Catedrática Asociada de Administración de Sistemas de Oficina. B.A. Universidad de Puerto Rico; M.A. New York University; Ed.D. Universidad Interamericana de Puerto Rico.

VALLE RIVERA, LILLIAN N., Catedrática Asociada de Español. B.A., M.A. Universidad de Puerto Rico.

VARGAS ORTIZ, PEDRO, Instructor de Enfermería. B.S., M.S. Universidad de Puerto Rico.

VEGA GARCÍA, ELIA, Catedrática Auxiliar de Justicia Criminal. B.A. Pontificia Universidad Católica de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico.

VELÁZQUEZ ÁLVAREZ, JOAQUIN, Catedrático Asociado de Salud y Educación Física. B.A., M.A. Universidad Interamericana de Puerto Rico; NMD, John F. Kennedy College of Nutritional Arts and Sciences; AMD, The Open International University for Complementary Medicines; HCD de la Organización Mundial de la Salud Pública.

VELÁZQUEZ RODRÍGUEZ, NILSA, Catedrática Auxiliar de Español. B.A. Universidad de Puerto Rico; M.A. University at Albany, New York.

VÉLEZ GRANELL, CARLOS, Catedrático Asociado de Ciencias Biomédicas. B.S. Pontificia Universidad Católica de Puerto Rico; Ph.D. Escuela de Medicina de Ponce.

VÉLEZ MIRANDA, DAMIÁN, Catedrático Auxiliar de Biología. B.S. Universidad Interamericana de Puerto Rico; M.S. Universidad de Puerto Rico.

VÉLEZ MIRANDA, SAMUEL, Catedrático Auxiliar de Gerencia Industrial. B.S. Universidad de Puerto Rico; M.B.A., Ph.D. Universidad Interamericana de Puerto Rico.

VÉLEZ ROSADO, MARÍA A., Instructora de Administración de Sistemas de Oficina. B.A., M.A. Universidad Interamericana de Puerto Rico.

VERA VÉLEZ, LAMBERTO, Catedrático de Educación. B.A. Universidad de Puerto Rico; M.A. Montclair State College; Ed.D. Universidad Interamericana de Puerto Rico.

VILLA RODRÍGUEZ, JOEL, Catedrático Asociado de Justicia Criminal. B.A. Pontificia Universidad Católica de Puerto Rico; M.A. Universidad de Puerto Rico; Ph.D. Universidad Complutense de Madrid, España.

## Faculty San Germán Campus

ACEVEDO SEGARRA, RAÚL, Catedrático de Educación. Ph.D. New York University.

ACEVEDO SEMIDEY, EVELYN, Catedrática de Educación. B.S. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ed.D. Brigham Young University.

ACOSTA MEDINA, MARCOS, Catedrático Auxiliar de Tecnología de Ingeniería Electrónica. B.S.E.E. Universidad Autónoma de Santo Domingo, M.E.E. Universidad de Puerto Rico.

ACOSTA VÉLEZ, GRISELLE, Catedrática Asociada de Español. B.A. Universidad de Puerto Rico; M.A. University of Illinois.

ALVARADO RODRÍGUEZ, NYVIA, Catedrática de Biología. B.S. Universidad Interamericana de Puerto Rico; M.S. Universidad de Puerto Rico; Ph.D. Escuela de Medicina de Ponce.

ÁLVAREZ PONS, FRANCISCO, Catedrático Asociado de Educación Física. Ph.D. Florida State University.

ASENCIO TORO, GLORIA, Catedrática de Psicología. B.A. Universidad de Puerto Rico; M.S. Universidad Carlos Albizu; Ph.D. Universidad de Puerto Rico.

AVILÉS MARTÍNEZ, YVONNE, Catedrática Auxiliar de Ciencias de Computadoras. B.S.E.E., M.S.E.E. Universidad de Puerto Rico.

BETANCOURT CASILLAS, NILDA, Catedrática Asociada de Música. B.M., M.M. Temple University.

BODEGA MORA-GRANADOS, MARÍA D., Catedrática de Español. B.A. Universidad Interamericana de Puerto Rico; M.A., Ph.D. Universidad de Puerto Rico.

BONILLA CRESPO, MARÍA, Catedrática de Administración de Sistemas de Oficina. B.A. Universidad de Puerto Rico; M.A. New York University; Ed.D. University of Maryland.

BOSQUES VARGAS, NEMESIO, Instructor de Tecnología Radiológica. B.A. Universidad de Puerto Rico.

BRAILOWSKY CABRERA, RAQUEL, Catedrática de Antropología y Sociología. B.A. Universidad de Puerto Rico; M.A., Ph.D. State University of New York.

BRAULIO FLORES, ANA I., Profesora Emérita de Educación. B.A. Universidad Interamericana de Puerto Rico; B.D. Yale University; M.A. University of Chicago; Ed.D. Indiana University.

CABRERA RÍOS, RICARDO, Catedrático Asociado de Música. B.A. Universidad de Puerto Rico; M.M. Ed. Florida State University.

CENTENO MARTELL, INGRID, Catedrática Auxiliar de Música. B.A. Universidad Interamericana de Puerto Rico; M.M.Ed. Florida State University.

CHÁVEZ GIL, TULLIO, Catedrático Asociado de Química. B.S. Universidad del Valle, Cali, Colombia; Ph.D. Universidad de Sao Paulo, Brasil.

CHELLOUF, LINDA, Catedrática Asociada de Música. B.M. Ecole Nationale de Musique et de Dance, Créteil, Francia; DMA Eastman School of Music, Universidad de Rochester.

COLÓN AGUILAR, NANCY, Catedrática Auxiliar de Educación. B.S., M.A. Pontificia Universidad Católica de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

DESCHLER, RALPH J., Profesor Emérito de Inglés y Literatura. B.A. Duke University; M.A., Ph.D. Stanford University.

DEVARIS, PIERRE JOSEPH, Catedrático Asociado de Economía y Mercadeo. B.A., M.B.A. Universidad Interamericana de Puerto Rico.

ECHEVARRÍA FELICIANO, LUIS A., Catedrático Asociado de Contabilidad. B.B.A., M.B.A. Pontificia Universidad Católica de Puerto Rico.

ESTÉVEZ BRETON, GENTIL, Catedrático de Matemáticas y Física. B.S. Universidad Nacional de Colombia; M.S. Universidad de Puerto Rico; Ph.D. Clark University.

FAS SOSA, NAYIP, Catedrático Auxiliar de Geografía. B.A. Universidad Interamericana de Puerto Rico; M.S. Universidad Nacional Autónoma de México.

FASSIHIAN, AHMAD, Catedrático Asociado de Inglés y Lingüística. B.A. Shiraz University; M.A. Universidad de Pahlavi; Ph.D. Georgetown University.

GALARZA LABOY, JAIME, Catedrático Asociado de Biología. B.S., M.S. Universidad de Puerto Rico.

GARCÉS LLANTÍN, ROSA E., Catedrática Auxiliar de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico.

GARCÍA BERNAL, BALBINO, Catedrático Asociado de Matemáticas. Licenciado en Matemáticas, Universidad de los Andes; Diplome Mathematiker, Westfalischen Wilhelms-Universität; Doktors del Naturwissenschaften, Ludwig-Maximilians-Universität Munchen.

GARCÍA VERA, MARÍA, Catedrática Asociada de Arte. B.A. Universidad Interamericana de Puerto Rico; M.F.A. University of Florida.

GEORGE HAMP, RUTH L., Catedrática Asociada de Educación Física. B.S. Wheaton College; M.Ed. University of Arizona; D.P.E. Indiana University.

GONZÁLEZ MEDEROS, ÁNGELA, Catedrática Asociada de Química. B.S. Química-Universidad Central de Venezuela; M.S., Ph.D. University of Massachusetts.

GONZÁLEZ MENDOZA, JUAN R., Catedrático Asociado de Historia. M.A., Ph.D. State University of New York.

GRANIELA RAMÍREZ, LUZ I., Catedrática Auxiliar de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico.

GRANIELA RODRÍGUEZ, AURORA, Catedrática Asociada de Educación. B.A. Universidad de Puerto Rico; Ed.D. University of Illinois.

GUASP SOTO, ZAYRA M., Catedrática Asociada de Psicología. B.A. Universidad Interamericana de Puerto Rico; M.A., Ph.D. Universidad Carlos Albizu.

GUTIÉRREZ DESA, ANDRÉS, Catedrático Asociado de Gerencia y Administración. B.A., M.B.A., Universidad de Puerto Rico; Ph.D. Walden University.

GUTIÉRREZ FERNÁNDEZ, ILIA, Catedrática Asociada de Educación Física. B.A. Universidad Interamericana de Puerto Rico; M.Ed. Oregon State University, Ed.D. Universidad Interamericana de Puerto Rico.

HERNÁNDEZ CRUZ, JUAN E., Catedrático de Sociología. B.A., M.A. Universidad de Puerto Rico; Ph.D. New York University.

HERNÁNDEZ SOTO, OSVALDO, Catedrático Asociado de Educación Física. B.A., M.A., Ed.D. Universidad Interamericana de Puerto Rico.

IRIZARRY COLÓN, TERESA, Catedrática Auxiliar de Enfermería. B.S.N., M.S.N. Universidad de Puerto Rico.

IRIZARRY GUZMÁN, CARLOS E., Catedrático Asociado de Contabilidad y Finanzas. B.B.A. Universidad Interamericana de Puerto Rico; M.B.A. Pontificia Universidad Católica de Puerto Rico; D.B.A. Nova Southeastern University.

IRIZARRY RAMÍREZ, ELBA T., Catedrática Asociada de Educación. Ed.D. Universidad Interamericana de Puerto Rico; M.A. Seminario Evangélico de Puerto Rico.

JAVIER MONTALVO, PEDRO, Catedrático Asociado de Física. B.S. Universidad de Puerto Rico; Ph.D. The Pennsylvania State University.

JIMÉNEZ PÉREZ, DIANA L., Catedrática Auxiliar de Administración de Empresas y Mercadeo. B.S., M.B.A. Universidad de Puerto Rico.

KING GREENWALD, JONATHAN, Catedrático de Economía. B.A., M.A., Ph.D. University of California.

LANDRY, JACQUES, Catedrático de Música. B.A. University of Ottawa; Prof. Superior, Conservatorio Real de Música, Madrid; D.M.A. University of Miami.

LEÓN RODRÍGUEZ, JANET, Catedrática Auxiliar de Artes Plásticas. B.A., M.F.A. Universidad Interamericana de Puerto Rico.

LECOMPTE MONTES, ÁLVARO, Catedrático de Matemáticas. Magister der Naturwissenschaften, Dr. Rer. Nat., Universidad de Viena.

LLANOS VARGAS, LINA S., Catedrática Auxiliar de Matemáticas. B.S. Universidad de Colombia; M.S. Universidad de Puerto Rico; M.A., Ed.D. Universidad Interamericana de Puerto Rico.

LÓPEZ CASTILLO, ÁNGELA, Catedrática Auxiliar de Contabilidad. B.A., M.B.A. Universidad de Puerto Rico; M.S. Middle Tennessee State University.

LÓPEZ SULLIVAN, PEDRO, Catedrático Asociado de Tecnología Electrónica. B.S.E.E., M.S.N.E Universidad de Puerto Rico, Ed.D., Universidad Interamericana de Puerto Rico.

LÓPEZ TORRES, DALILA, Catedrática Asociada de Educación. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico, Ed.D., Universidad Interamericana de Puerto Rico.

LUGO NEGRÓN, CARMEN, Catedrática Auxiliar de Administración de Sistemas de Oficina. B.A. Universidad Interamericana de Puerto Rico; M.A. New York University.

MADERA CRUZ, LEIDA, Catedrática Auxiliar de Enfermería. B.S.N., M.S.N. Pontificia Universidad Católica de Puerto Rico.

MARTÍNEZ ALDEBOL, MARY LUZ, Catedrática Auxiliar. B.S., Universidad de Puerto Rico; M.A. Universidad de Phoenix; M.S., Ed.D. Universidad Interamericana de Puerto Rico.

MARTÍNEZ ARROYO, FELIPE, Catedrático de Filosofía y Religión. B.A. Universidad Interamericana de Puerto Rico; M.Div. Seminario Evangélico de Puerto Rico; Ph.M., Ph.D. Drew University.

MARTÍNEZ PÉREZ, BENITO, Catedrático Asociado de Contabilidad y Finanzas. B.B.A. Universidad de Puerto Rico; M.B.A. Universidad Interamericana de Puerto Rico.

MARTÍNEZ TORO, VILMA S., Catedrática Asociada de Biología. B.S. Universidad Interamericana de Puerto Rico; M.S. Universidad de Puerto Rico.

MEJÍA GÓMEZ, GUILLERMO, Catedrático Auxiliar de Ciencias de Computadoras. B.S. University of Tulsa; M.S. Oklahoma State University.

MELÉNDEZ MENÉNDEZ, AURORA, Catedrática de Inglés y Lingüística. B.A. Universidad de Puerto Rico; M.A. Universidad Interamericana de Puerto Rico; Ph.D. New York University.

MÉNDEZ MATOS, IRMA, Catedrática Auxiliar de Tecnología Médica. B.S. Universidad de Puerto Rico; M.S. M.T. Universidad Interamericana de Puerto Rico.

MÉNDEZ PANEDAS, MARÍA DEL ROSARIO, Catedrática de Español. Licenciado en Filosofía, Universidad Complutense de Madrid; Ph.D. Syracuse University.

MOE, CAROL, Catedrática Asociada de Inglés. B.A. Drake University; M.A. University of Illinois; Ph.D. University of California.

MOJICA COMAS, AGNES, Catedrática Asociada de Ciencias Políticas. B.A. Universidad de Puerto Rico; M.A. University of London.

MONTALVO BENET, RAQUEL, Catedrática Asociada de Música. B.A. Universidad Interamericana de Puerto Rico; M.M., Ph.D. University of Miami.

MONTALVO GARCÍA, EDWIN, Catedrático Asociado de Biología. B.A. Universidad de Puerto Rico; Licenciatura en Medicina y Cirugía, Facultad de Medicina en Zaragoza.

MORALES COLLADO, MILSA, Catedrática Asociada de Administración de Sistemas de Oficina. B.S.S. Pontificia Universidad Católica de Puerto Rico; M.A. Kean College of New Jersey; M.A. New York University; Ph.D. University of Maryland.

MORALES RODRÍGUEZ, GARY, Catedrático de Música. B.A. Universidad Interamericana de Puerto Rico; M.S., Ed.D. University of Illinois.

MORENO CEPERO, MADJA, Catedrática Auxiliar de Música. B.M. Conservatorio de Música; M.M. University of Nevada.

MUÑOZ JUSTINIANO, RAFAEL, Catedrático Auxiliar de Matemáticas y Computadoras. B.S.E.E. Universidad Politécnica de Puerto Rico; B.S., M.E. Universidad de Puerto Rico.

NAVEDO RIVERA, MARÍA, Instructora de Artes Plásticas. B.A., M.F.A. Universidad Interamericana de Puerto Rico.

ORTIZ FIGUEROA, MARITZA, Catedrática Auxiliar de Enfermería. B.S.N. Universidad de Puerto Rico; M.S.N. Indiana University.

ORTIZ RIVERA, ILEANA, Catedrática Auxiliar de Enfermería. B.S.N. Universidad Interamericana de Puerto Rico; M.S.N. Pontificia Universidad Católica de Puerto Rico.

PADILLA CAMACHO, MIRIAM, Catedrática Asociada de Educación. B.A., M.A. Universidad de Puerto Rico; Ed.D. Universidad Interamericana de Puerto Rico.

PADILLA GONZÁLEZ, AILÍN, Catedrática Asociada de Administración de Empresas. B.A., M.B.A. Universidad de Puerto Rico; Ph.D. Universidad Interamericana de Puerto Rico.

PADOVANI VARGAS, JOAQUÍN, Catedrático Auxiliar de Matemáticas. B.S., M.A. Universidad de Puerto Rico.

PERDOMO SÁNCHEZ, LILLIAM, Catedrática Auxiliar de Mercadeo. B.A., B.B.A, M.B.A Ph.D, Universidad Interamericana de Puerto Rico.

PÉREZ RODRÍGUEZ, ISABEL C., Catedrática Auxiliar de Español. B.A., M.A. Universidad de Puerto Rico.

PINO LÓPEZ, CARMEN, Instructora de Tecnología Médica. B.S. Universidad de Puerto Rico; M.S.M.T. Universidad Interamericana de Puerto Rico..

QUINTERO VILELLA, HÉCTOR, Catedrático de Biología. B.S., M.S. Universidad de Puerto Rico; Ph.D. Florida State University.

QUIÑONES HOWELL, ZULMA, Catedrática de Administración de Empresas, Mercadeo y Comunicaciones. B.S. Universidad Interamericana de Puerto Rico; M.B.A. University of Phoenix; Ph.D. Bowling Green State University.

RESTREPO LÓPEZ, FABIO, Catedrático de Ciencias Bibliotecarias y de la Información. B.S., M.L.S. University of Illinois; Ph.D. Texas Woman's University.

REYES RUIZ, JORGE A., Catedrático Asociado de Sistemas Computadorizados de Información Gerencial. Ingeniería de Sistemas, Universidad Inca de Colombia; M.B.A. Universidad Social de La Salle.

RODRÍGUEZ FAZZI, LUDAÍ, Catedrática Asociada de Tecnología Médica. B.S., M.S. Universidad de Puerto Rico.

RODRÍGUEZ FERNÁNDEZ, CARMEN, Catedrática Asociada de Psicología. B.A., M.Ed., Ed.D. University of Massachusetts.

RODRÍGUEZ IRIZARRY, WALTER, Catedrático Asociado de Psicología. B.A., M.A. Universidad Interamericana de Puerto Rico; Psy.D. Escuela de Medicina de Ponce.

RODRÍGUEZ RAMOS, INGRID, Catedrática Asociada de Psicología. B.A. Universidad de Puerto Rico; M.S., Ph.D. Universidad Carlos Albizu.

RODRÍGUEZ SANABRIA, CARMEN I., Instructora de Educación. B.A. Universidad Interamericana de Puerto Rico; M.A. Universidad de Puerto Rico.

RODRÍGUEZ SUÁREZ, RAMÓN A., Catedrático Auxiliar de Ciencias Políticas. B.A. Universidad Interamericana de Puerto Rico; M.A. St Johns University, New York; Ph.D. University of Massachusetts.

ROMERO GARCÍA, IVONNE, Catedrática de Psicología. M.Ed. Boston College; Ed.D. University of Massachusetts.

ROMEU POLANCO, ELIEZER, Catedrático Asociado de Contabilidad. B.B.A. Universidad Interamericana de Puerto Rico; M.B.A. Pontificia Universidad Católica de Puerto Rico; Ph.D. Universidad Interamericana de Puerto Rico.

ROSADO NAZARIO, SAMUEL, Catedrático Asociado de Música. B.A. Universidad Interamericana de Puerto Rico; M.S. University of Illinois.

SANTIAGO CAMACHO, FERNANDO L., Catedrático Auxiliar de Arte. B.A. Universidad Interamericana de Puerto Rico; M.A.Ed. San Francisco State University.

SANTIAGO CAMPOS, FREDDIE, Instructor de Música. B.M. Conservatorio de Música de Puerto Rico.

SEDA RODRÍGUEZ, IRIS, Catedrática Auxiliar de Biología. B.S., M.S. Universidad de Puerto Rico.

SELLAS APONTE, JOSÉ R., Catedrático Asociado de Inglés. B.A., M.A. Universidad Interamericana de Puerto Rico; Ed.D. Universidad de Puerto Rico.

SEPÚLVEDA PADILLA, LAURA A., Catedrática Asociada de Finanzas. B.A., M.B.A., Ph.D. Universidad Interamericana de Puerto Rico.

TORO COLÓN, EVA, Catedrática Auxiliar de Español. B.A., M.A. Universidad de Puerto Rico.

TORO MARTÍNEZ, ARLÍN, Catedrática Asociada de Biología. B.S. Universidad Interamericana de Puerto Rico; M.S., Ph.D. Universidad de Puerto Rico.

TORRES MALAVÉ, HÉCTOR, Catedrático Auxiliar de Español. B.A., M.A. Universidad de Puerto Rico.

TORRES PADILLA, SARA, Catedrática Auxiliar de Tecnología Radiológica. B.S., M.B.A., Ed.D. Universidad Interamericana de Puerto Rico.

TORRES RIVERA, LESTER, Catedrático Auxiliar de Sistemas Computadorizados de Información Gerencial y Mercadeo. B.B.A., M.B.A. Universidad Interamericana de Puerto Rico.

TORRES RODRÍGUEZ, CARMEN D., Catedrática Auxiliar de Enfermería. B.S.N. Pontificia Universidad Católica de Puerto Rico; M.S.N. Universidad de Puerto Rico.

TORRES RUIZ, SARAH, Catedrática Auxiliar de Matemáticas. B.S. Universidad de Puerto Rico; M.S. Georgia State University.

TORRES TALAVERA, FÉLIX F., Catedrático Auxiliar de Química. B.S. Universidad Interamericana de Puerto Rico; M.S., Ph.D. New Mexico State University.

VALCÁRCEL ENRÍQUEZ, ANDRÉS, Catedrático Auxiliar de Música. B.M. Conservatorio de Música de Puerto Rico; M.M. University of Akron.

VALENTÍN CARO, MARI OLGA, Catedrática Auxiliar. B.A. Universidad de Puerto Rico, M.A., Ed.D. Universidad Interamericana de Puerto Rico.

VARGAS RODRÍGUEZ, LILLIAN, Instructora de Enfermería. B.S.N. Universidad Adventista de las Antillas; M.S.N., Universidad de Puerto Rico.

VÁZQUEZ PÉREZ, AMALIA, Catedrática Asociada de Biología. B.S., M.S.M.T. Universidad Interamericana de Puerto Rico; M.S. Universidad de Puerto Rico.

VEGA ROSADO, LUZ LEYDA, Catedrática Asociada de Administración de Empresas. B.S., M.B.A., Ph.D. Universidad de Puerto Rico.

VÉLEZ CARABALLO, AXEL, Catedrático Auxiliar de Química. B.S., M.S. Universidad de Puerto Rico.

VÉLEZ DE VÉLEZ, JEANETTE, Catedrática Auxiliar de Inglés. B.A., M.A. Universidad Interamericana de Puerto Rico; M.A. New York University.

VÉLEZ SERRA, DAMIÁN, Catedrático de Educación. B.A., M.A. Universidad Interamericana de Puerto Rico; Ph.D. University of Connecticut.

VÉLEZ TORO, WALDEMAR, Catedrático de Gerencia y Recursos Humanos. B.A., M.B.A. Universidad Interamericana de Puerto Rico; D.B.A. University of Sarasota.

VÉLEZ VÉLEZ, MARITZA, Catedrática Auxiliar de Psicología. B. A. Universidad de Puerto Rico, Psy. D. Ponce School of Medicine.

VIADA BELLIDO DE LUNA, MARTA L., Catedrática Asociada de Inglés. B.A., M.A., Universidad Interamericana de Puerto Rico, Ph.D., Universidad de Puerto Rico.

VILELLA VDA. DE SAMBOLÍN, NILDY, Profesora Emérita de Salud y Educación Física. B.S. Universidad Interamericana de Puerto Rico; M.S. Columbia University.

VIVONI ALCARAZ, PAUL, Catedrático de Arte. B.A. Universidad Interamericana de Puerto Rico; M.A. University of Northern Iowa; Ed.D. Illinois State University.

WALKER WINCHELL, ROBIN, Catedrática Auxiliar de Biología. B.A. Universidad Interamericana de Puerto Rico; M.A. University of New Mexico.

ZAPATA PADILLA, EVELYN, Catedrática Auxiliar de Gerencia y Recursos Humanos. B.A. Universidad Interamericana de Puerto Rico; M.A. Universidad de Puerto Rico.

ZORNOSA CABRERA, LUIS M., Catedrático Asociado de Sistemas Computadorizados de Información Gerencial. B.A. Ingeniería Industrial, Universidad de los Andes; M.E. Boston University.

## **Faculty School of Law**

BENVENUTTI TORO, EVELYN, Catedrática Asociada. LL.M., J.D. Pontificia Universidad Católica de Puerto Rico; B.A. Universidad de Puerto Rico.

BOSQUES HERNÁNDEZ, GERARDO, Catedrático Auxiliar. LMI Escuela de Derecho, Universidad de Tulane; J.D. Escuela de Derecho, Pontificia Universidad Católica de Puerto Rico; B.B.A. Universidad de Puerto Rico, Mayagüez.

CABÁN VALES, PEDRO J., Catedrático Auxiliar. Doctorado Derecho Civil, Universidad Complutense de Madrid; J.D., B.A. Universidad de Puerto Rico.

CANCIO GONZÁLEZ, SYLVIA, Catedrática. M.C.L. Tulane University; J.D. Universidad Interamericana de Puerto Rico; B.A. Colegio Universitario del Sagrado Corazón.

CORDOVA PHELPS, ANDRÉS L., Catedrático Asociado. M.A. Boston College; J.D. Universidad de Puerto Rico; B.A. College of the Holy Cross.

CORREA LUNA, JUAN, J.D.; B.A., Universidad Interamericana de Puerto Rico.

DIEZ FULLADOSA, MARÍA DE LOS A., Catedrática. Doctora en Derecho, Univ. Del País Vasco; J.D. Universidad Interamericana de Puerto Rico B.A., Manhattanville College.

FERNÓS LÓPEZ-CEPERO, MANUEL J., Catedrático. LL.M. New York University; J.D., B.B.A. Universidad de Puerto Rico.

FERNÓS LÓPEZ-CEPERO, MARÍA D., Catedrática Asociada. LL.M. Columbia University; J.D., B.A. Universidad de Puerto Rico.

FIGUEROA TORRES, MARTA, Catedrática. LL.M. Harvard University; J.D., B.B.A., Universidad de Puerto Rico.

FONTANET MALDONADO, JULIO, Catedrático. Doctor en Derecho, Universidad del País Vasco; LL.M. University of Chicago; J.D. Universidad Interamericana de Puerto Rico; B.A. University of Central Florida.

GARCÍA CÁRDENAS, MARGARITA E., Catedrática. Doctora en Derecho, Universidad Complutense de Madrid; J.D., B.A., Universidad de Puerto Rico.

GARI PÉREZ, BLANCA M., Catedrática Auxiliar. M.A. Universidad de Puerto Rico, J.D., Facultad de Derecho, B.A. Universidad Interamericana de Puerto Rico.

GONZÁLEZ BÁEZ, MARILUCY, Catedrática Asociada. J.D. Universidad Interamericana de Puerto Rico.; B.A. Universidad de Puerto Rico.

GORRÍN PERALTA, CARLOS I., Catedrático. LL.M. Harvard University, J.D. Universidad de Puerto Rico; B.A. College of the Holy Cross.

IRIZARRY YUNQUÉ, CARLOS J., Catedrático Distinguido. J.D., B.A. Universidad de Puerto Rico.

JIMÉNEZ SANTIAGO, ALBERTO OMAR, Catedrático Asociado. LL.M. Harvard University; J.D., B.A. Universidad de Puerto Rico.

MUÑOZ RIVERA, MANUELITA, Catedrática. LL.M. Georgetown University; J.D., B.B.A. Universidad de Puerto Rico.

NARVÁEZ NEGRÓN, MAGDIEL, Catedrático Asociado. J.D., B.A. Universidad Interamericana de Puerto Rico.

NEGRÓN GARCÍA, ANTONIO, Catedrático Distinguido, J.D., B.A. Universidad de Puerto Rico.

NEGRÓN PORTILLO, LUIS MARIANO, Catedrático. J.S.D. Stanford University; LL.M. Yale University, M.A.P., J.D., B.A. Universidad de Puerto Rico.

NEVARES MUÑIZ, DORA, Catedrática. Ph.D. University of Pennsylvania; M.A., J.D., B.A. Universidad de Puerto Rico.

QUIÑONES ECHEVARRÍA, HERIBERTO, Catedrático Asociado. LL.M. Pontificia Universidad Católica de Puerto Rico; J.D., B.A. Universidad de Puerto Rico.

QUIÑONES NÚÑEZ, DOEL R., Catedrático. Doctor en Derecho, Universidad Complutense de Madrid; M.A. Boston University; J.D. Universidad de Puerto Rico; B.A. State University of New York.

RAMOS GONZÁLEZ, CARLOS E., Catedrático. LL.M. University of California at Berkeley. J.D. Universidad de Puerto Rico; Diploma de Postgraduado en Ciencias Sociales de la Universidad de Estocolmo; B.A. Universidad de Puerto Rico.

REYES GIL, YANIRA, Catedrática Asociada. Ph.D. Purdue University.; J.D., B.A., Universidad de Puerto Rico.

RIVERA RIVERA, LUIS R., Catedrático Asociado. Doctor en Derecho, Universidad Complutense de Madrid; J.D., M.A., B.A., Universidad de Puerto Rico.

RODRÍGUEZ MARTIN, JESSICA, Catedrática Asociada. J.D., B.A. Universidad de Puerto Rico.

SÁNCHEZ CASO, LUIS H., Catedrático Asociado. LL.M. Georgetown University; J.D. Universidad Interamericana de Puerto Rico; B.A. Universidad de Puerto Rico.

VÉLEZ RODRÍGUEZ, ENRIQUE, Catedrático. Doctor en Derecho, Universidad del País Vasco; J.D. Universidad de Puerto Rico; M.A. New York University; B.A. St. Louis University.

VICENTE RIVERA, ESTHER, Catedrática. Ph.D. in Law, London School of Economics and Political Science; LL.M. London School of Economics and Political Science; J.D., B.A. Universidad de Puerto Rico.

ZENO SANTIAGO, CHARLES, Catedrático. LL.M. Harvard University; J.D. Universidad Interamericana de Puerto Rico; B.B.A. Universidad de Puerto Rico.

## **Faculty School of Optometry**

BOULOGORIS VASSILIOS, Catedrático Asociado. O.D. New England College of Optometry

CABELLO RIVAS, IRIS, Catedrática Auxiliar. O.D. Universidad Interamericana de Puerto Rico.

CONDE SEIJO, MANUEL, Catedrático Auxiliar. O.D. Universidad Interamericana de Puerto Rico; Fellowship en Educación Clínica Universidad Interamericana de Puerto Rico.

DE JESUS MIRANDA, JOSE M., Catedrático Asociado. O.D. Universidad Interamericana de Puerto Rico. Fellowship en Educación Clínica Universidad Interamericana de Puerto Rico. M.A. en Ciencias Biomédicas Escuela de Medicina de la Universidad Central Del Caribe de Puerto Rico.

DEVAL BONETA, JACQUELINE, Catedrática Auxiliar. O.D. Universidad Interamericana de Puerto Rico.

DÍAZ NAZARIO, JOSÉ R., Catedrático Auxiliar. M.D. Escuela de Medicina de la Universidad Central del Caribe; Residencia en Citogenética, Clínica Mayo en Minnesota; Especialidad en Patología Clínica, Universidad de Puerto Rico.

GALARZA ESCOBAR, JUAN, Catedrático Auxiliar. O.D. Universidad Interamericana de Puerto Rico; Residencia en Base Hospital / Low Vision from Illinois College of Optometry.

GIL KAREN, Catedrática Auxiliar. M.D. Universidad Autónoma de Guadalajara, Residencia en Oftalmología, Fundación Hospital Nuestra Señora de la Luz, México D.F., MPH Universidad de Puerto Rico Recinto de Ciencias Médicas.

LORENTE TORRES, NILDA, Catedrática Auxiliar. O.D. Universidad Interamericana de Puerto Rico.

LUGO LUIS, Catedrático Auxiliar. O.D. Universidad Interamericana de Puerto Rico.

MERCADO GONZÁLEZ YVETTE, Catedrática Auxiliar. O.D. Universidad Interamericana de Puerto Rico.

MORALES VELAZQUEZ JUAN, Catedrático Auxiliar. O.D. Universidad Interamericana de Puerto Rico

MORDI, JOHN, Catedrático. B.S. University of Benin; M.S. University of Manchester; Ph.D. State University of New York.

ORTIZ PEDROGO, KATERIN, Instructora Clínica. O.D. Illinois College of Optometry; Residencia en Optometría Pediátrica Pennsylvania College of Optometry, Salus University.

PAGÁN FIGUEROA, ANDRÉS, Catedrático Asociado. O.D. Universidad Interamericana de Puerto Rico; M.P.H. Universidad de Puerto Rico.

PAGÁN TORRES DAMARIS, Catedrática Auxiliar Clínico. O.D. Universidad Interamericana de Puerto Rico; M.P.H. Universidad de Puerto Rico.

ROBLES RODRÍGUEZ, DICK, Instructor. B.S. Universidad de Puerto Rico.

ROMERO, ÁNGEL, Catedrático Asociado. O.D. Universidad Interamericana de Puerto Rico. Residencia en Terapia Visual Universidad del Estado de Nueva York.

RODRIGUEZ RUIZ, NEISHA, Catedrática Auxiliar O.D. Universidad Interamericana de Puerto Rico; Residencia en Optometría Geriátrica Hospital de Veteranos de P.R. en afiliación con la Universidad Interamericana de Puerto Rico. M.P.H-G Universidad de Puerto Rico, Recinto de Ciencias Médicas

RUIZ LUIS, Catedrático Auxiliar. O.D. Universidad Interamericana de Puerto Rico.

RULLÁN RIVERA, MAYRA, Catedrática Asociada. O.D. New England College of Optometry; Residencia en Base Hospital, Pennsylvania College of Optometry.

TORRES CRUZ, ZULMARIS, Instructora Clínica. O.D. Universidad Interamericana de Puerto Rico; Residencia en Cuidado Visual Primario, Universidad Interamericana de Puerto Rico.

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