



2012-2015

UPRA CATALOG

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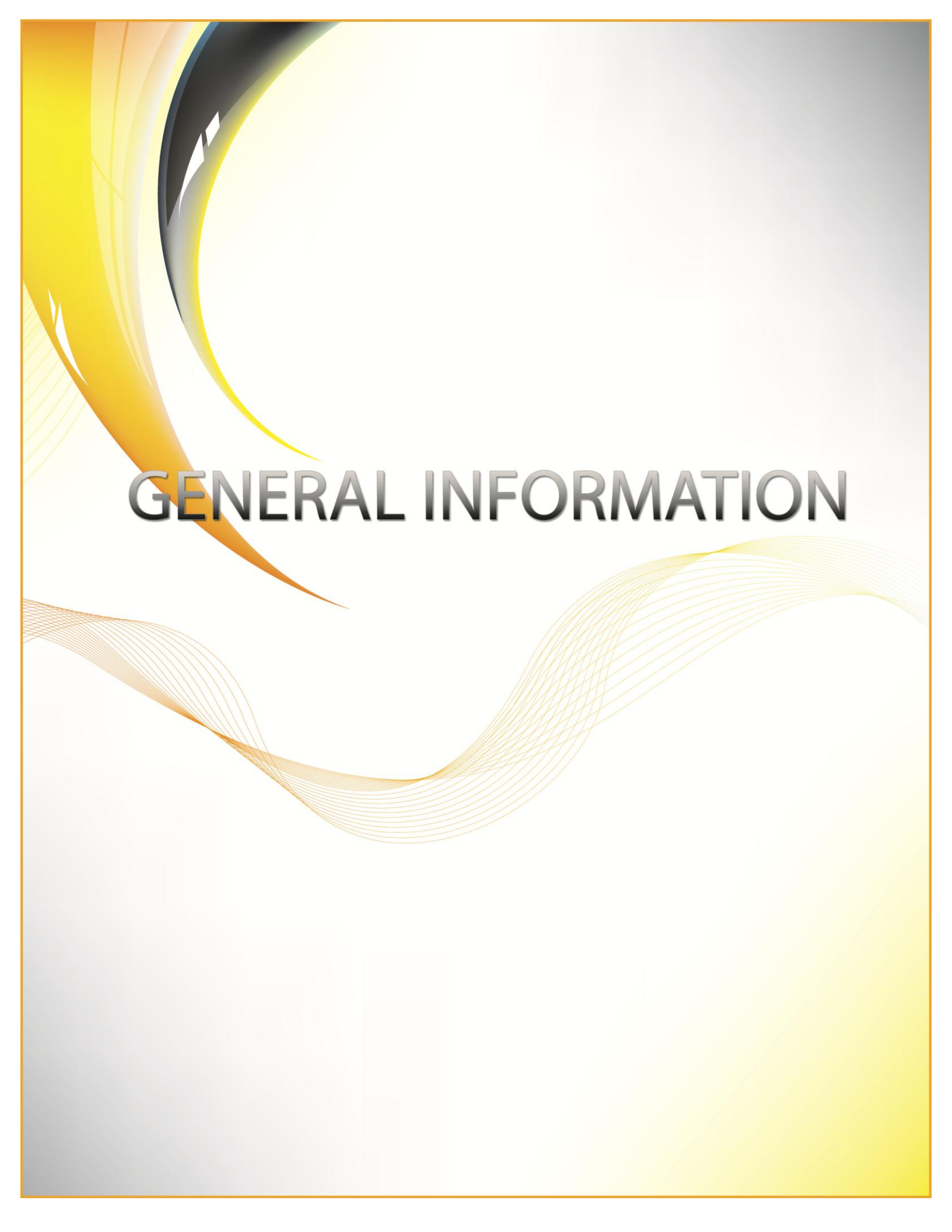
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GENERAL INFORMATION

HISTORY OF UPRA

The University of Puerto Rico at Arecibo was founded in 1967 as the Arecibo Regional College. It began its operations in April of that year with an enrollment of 515 students and a staff of 28 faculty members. In 1974, its present permanent facilities, located on a 49 acre lot in the "Las Dunas" sector, Route 129, Highway 653, kilometer 8 in Arecibo, were inaugurated. After thirteen years as the Arecibo Regional College the Council on Higher Education by virtue of its Certification number 323 of the 1980-81 series authorized the conversion to the Arecibo Technological University College. As a result of this transformation the Arecibo College expanded its offerings to include four-year bachelor's programs. On July 1, 1998, by virtue of Cert. 151 (1997-98) and in accordance with Act 16 (June 16 1993), the Board of Trustees of the University of Puerto Rico bestowed institutional autonomy to ATUC, which then became the Arecibo University College. Shortly thereafter, on March 9, 2000, the Board of Trustees authorized yet another change of name. The institution became the University of Puerto Rico at Arecibo (Board of Trustees Cert. 103, 1999-2000).

Current enrollment at the University of Puerto Rico at Arecibo is 3,500 students approximately with a faculty of approximately 277. UPRA offers 14 bachelor's degree programs, 3 associate degree programs, and 34 articulated transfer programs.

UPRA received its official accreditation as an institution of higher learning in 1967 by the Middle States Commission on Higher Education (MSCHE). In 1994, the bachelor's degree programs were accredited for an additional ten-year period. On November 18, 1997, the Council on Higher Education approved a License of Renewal for the Arecibo Technological University College to continue operating as an institution of higher education in Puerto Rico. The MSCHE and the CHE reaccredited UPRA in 2007.

The following programs are accredited by external professional agencies:

- ✚ Elementary Education and Physical Education for Elementary Level Programs by the Council for Accreditation of Teacher Education (NCATE).
- ✚ Office Systems by the Association of Collegiate Business Schools and Programs (ACBSP).
- ✚ Business Administration by the Association of Collegiate Business Schools and Programs (ACBSP).
- ✚ Computer Sciences by the Accreditation Board of Engineering and Technology – Computing Accreditation Commission (ABET-CAC).
- ✚ Nursing by the National League for Nursing Accrediting Commission (NLNAC).
- ✚ Technology in Industrial Chemical Process by the Accreditation Board for Engineering and Technology – Technology Accreditation Commission (ABET-TAC).

 The Library received recognition by the Library Association of College and Research Libraries (ACRL).

MISSION STATEMENT

(UPRA Academic Senate Certification 2002-03-32)

The University of Puerto Rico at Arecibo is an autonomous unit of Puerto Rico's Public Higher Education System. It is located on the North-Central region of the island, a geographical area where cattle and dairy businesses coexist with a concentration of high technology industries. This allows for a wide range of economic activities and services.

This University is an institution devoted to the production and dissemination of knowledge through teaching and research in the areas of the arts, sciences and technologies. It seeks to impart a quality university education that furthers the integral development at its students as professionals and citizens. To achieve this goal it offers a variety of programs in Arts and Sciences leading to associate and bachelor's degrees and transfer programs. These are supported by a network of student services and by a faculty committed to keeping abreast of developments in knowledge and the technologies to improve the teaching-learning process.

The Institution is committed to promoting interaction with the community by offering opportunities for professional improvement and continuing education to contribute to the social and cultural enrichment and improve the quality of life of the surrounding area and all of Puerto Rico. UPRA identifies itself with the values stated in the Mission of the University of Puerto Rico. It aspires to further critical respect for the plurality of ethical, moral and spiritual values distinctive of our contemporary society, as well as respect and enrichment of our cultural heritage as a legacy to future generations.

VISION

The University of Puerto Rico at Arecibo will be known for;

- its attractive, up-to-date and innovative curricular offerings, particularly at the undergraduate level, although with an increasing number of graduate courses;
- learning and teaching processes focused on the interaction between students and faculty;
- research and dissemination by students and faculty;
- its interaction with the communities served;
- the recruitment and retention of students and faculty committed to learning, research and social transformations;
- an increasing offering of distance education.
- encouraging respect for the enrichment of our cultural heritage, diversity and plurality of values that characterize our contemporary society.

To accomplish this vision, the University of Puerto Rico at Arecibo will adopt modern procedures and technologies that promote the optimal use of institutional resources and will hire, train and equip the necessary support personnel to strengthen teaching, research, and student support and community services.

Goals

The University of Puerto Rico at Arecibo, in implementing its mission, is committed to:

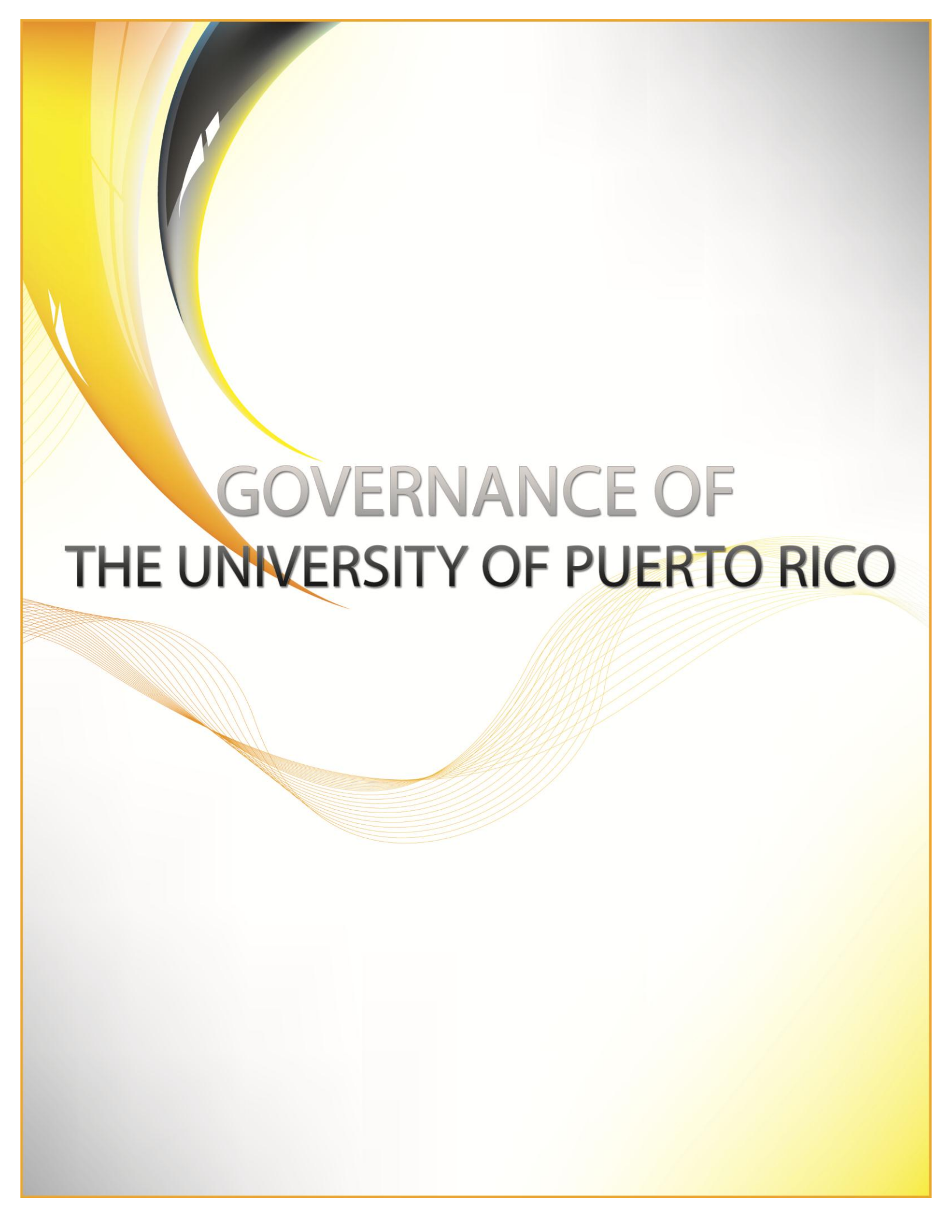
- Promoting the integral development of its students by enriching their intellectual, emotional, social and ethical values, so that they can attain self-fulfillment and actively contribute to the development of society.
- Stimulating in students their capacity for life-long learning, responsibility for their own growth, and awareness of their potential as a contributing members to the development of our country and of the international community
- Supporting research and creative endeavors.
- Fostering the application of the knowledge generated by the creative and investigative activities to the solution of society's problems
- Responding to society's changing needs by incorporating the advances in knowledge in the arts, the sciences and technology.
- Ensuring the efficient and effective use of the available human, fiscal and physical resources for the optimal development of the academic offerings.
- Making the Institution's physical and human resources available to the community.

Objetives

In order to attain these goals the University of Puerto Rico at Arecibo aims to:

- Offer and develop programs of study conducive to bachelor and associate degrees that respond to the needs of the community which it serves and to the development of society.
- Offer basic studies programs in sciences and liberal arts that will allow students to successfully continue their studies towards a bachelor's degree when they transfer to other institutions of higher education.
- Offer a General Education component that will expand the students' intellectual horizons, that broadens their consciousness of and sensibility to their cultural heritage and international culture, and enables them to make critical judgments in situations within their areas of specialization, and in other areas.
- Offer a General Education component that includes the development of basic oral and written communication skills in both Spanish and English.
- Offer a curriculum that will develop critical analysis skills.

- Provide curricula that develop the skills to use and evaluate information and to use information technology in an ethical and legal manner.
- Offer programs and specific courses designed to help students overcome academic deficiencies and reach their educational goals.
- Offer, through the Division of Continuing Education and Professional Studies, short credit-bearing or non-credit courses, seminars, workshops, lectures and certificate courses that will respond to the interests of the university and external community.
- Provide counseling, orientation, financial aid and health services which facilitate the adjustment to college life, stimulate academic success and help our students become useful and responsible citizens.
- Maintain a high level of excellence in academic offerings through a faculty that is competent and up to date in their respective fields.
- Maintain a high level of excellence in academic offerings through the use of innovative teaching-learning methods and the efficient use of traditional library and electronic information resources.
- Develop academic and institutional research programs to strengthen and enrich teaching.
- Encourage active participation of students, faculty and administrative personnel in university endeavors.
- Promote interaction with the external community.
- Provide opportunities of cultural enrichment, and social and recreational entertainment, to the university and surrounding communities.
- Strengthen the professional improvement program to keep the Institution's personnel up to date in their respective fields.
- Establish a continuing assessment process for programs, academic offerings and administrative processes to keep them updated so they adequately meet the needs of the community which this Institution serves.



GOVERNANCE OF THE UNIVERSITY OF PUERTO RICO

THE BOARD OF TRUSTEES

The Board of Trustees is the governing body of the University of Puerto Rico (UPR). It was created by virtue of Law No. 16 of July 16, 1993, to amend Article 3 of Law I of January 20, 1966, known as The University of Puerto Rico Law. The Board is composed of thirteen (13) members: ten (10) are citizens from the community, of which at least one must be a UPR alumnus; two (2) must be tenured professors in the UPR system , and one, a full-time student, who must be at least a sophomore in the UPR system. The ten citizens from the community are appointed for six-year terms by the Governor of Puerto Rico, with the advice and consent of the Puerto Rico Senate.

PRESIDENT OF THE UNIVERSITY OF PUERTO RICO

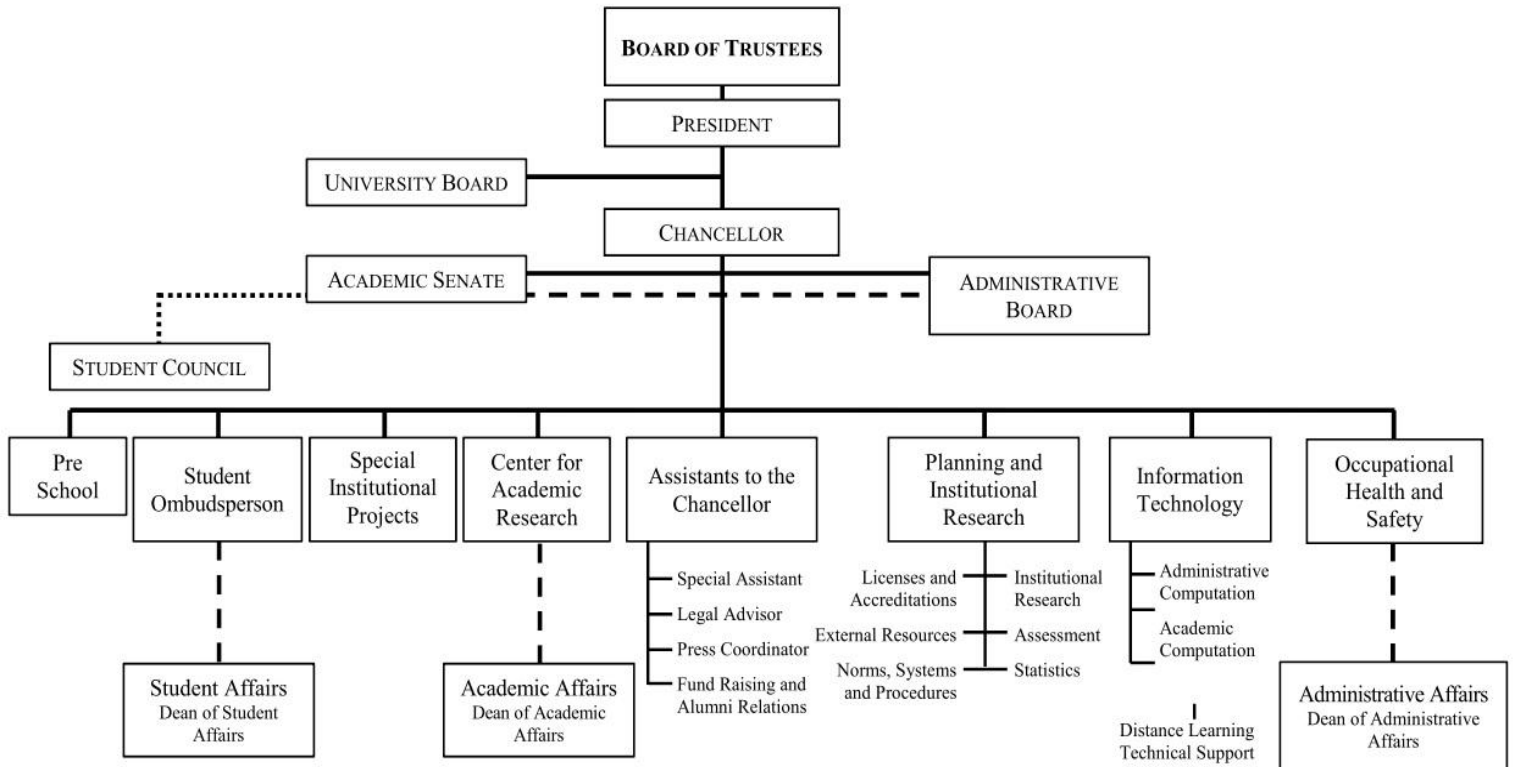
The President is the CEO of the UPR System, its representative before the Board of Trustees, President of the University Board, Director of the UPR Central Administration Offices, representative before the courts, and ex-officio member of all Schools, Academic Senates and Administrative Boards of all UPR units.

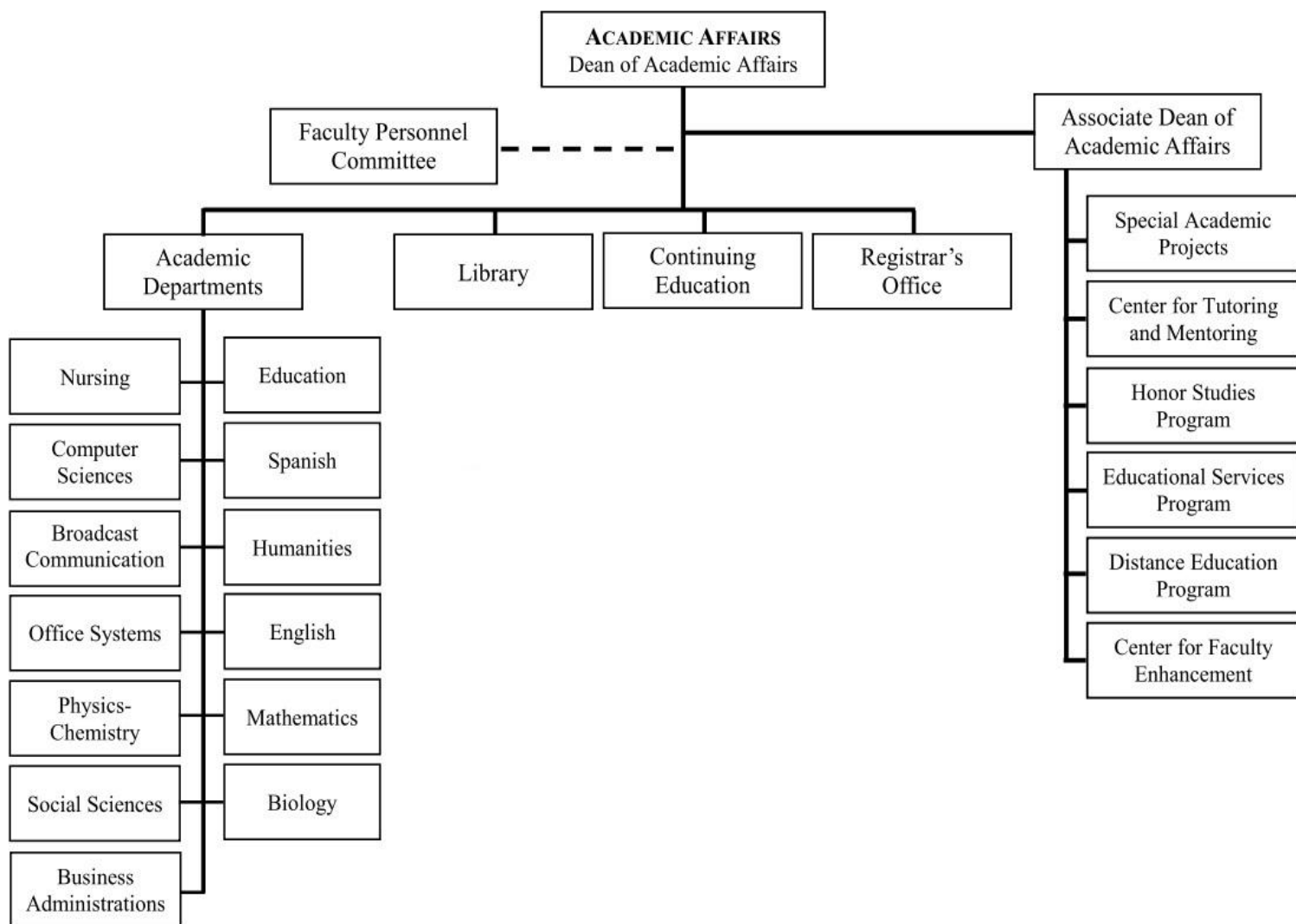
THE UNIVERSITY BOARD

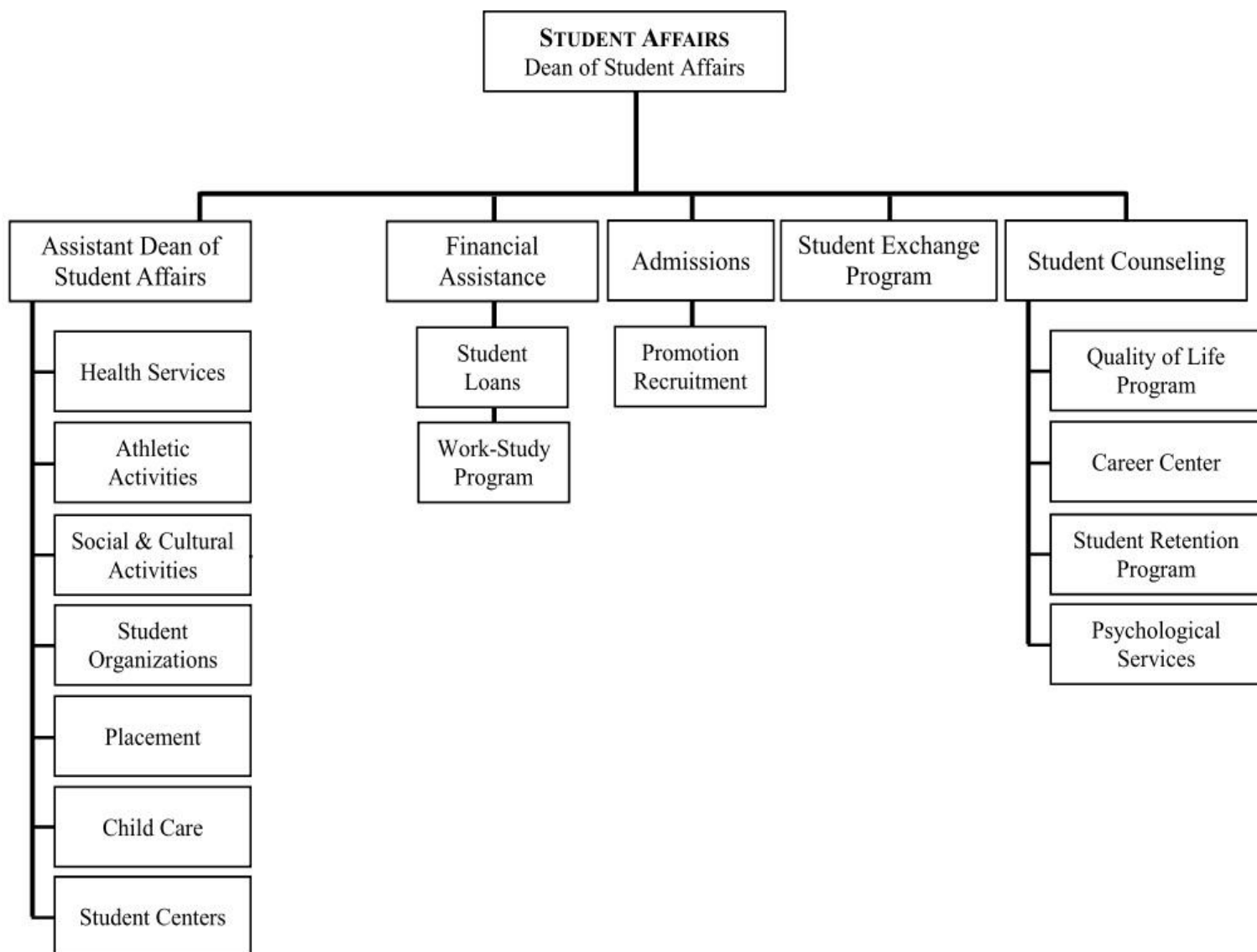
The University Board maintains the integration of the UPR System by means of joint planning. It counsels the President in the coordination of the administrative, academic and financial aspects of the various institutional units. The University Board submits projects for the reform of UPR By-Laws and the General Student Regulations to the Board of Trustees. The Board makes recommendations pertaining to the Integral Development Plan and to the UPR System Budget. It also resolves appeals on the decisions of Administrative Boards and Academic Senates of the various UPR campuses.

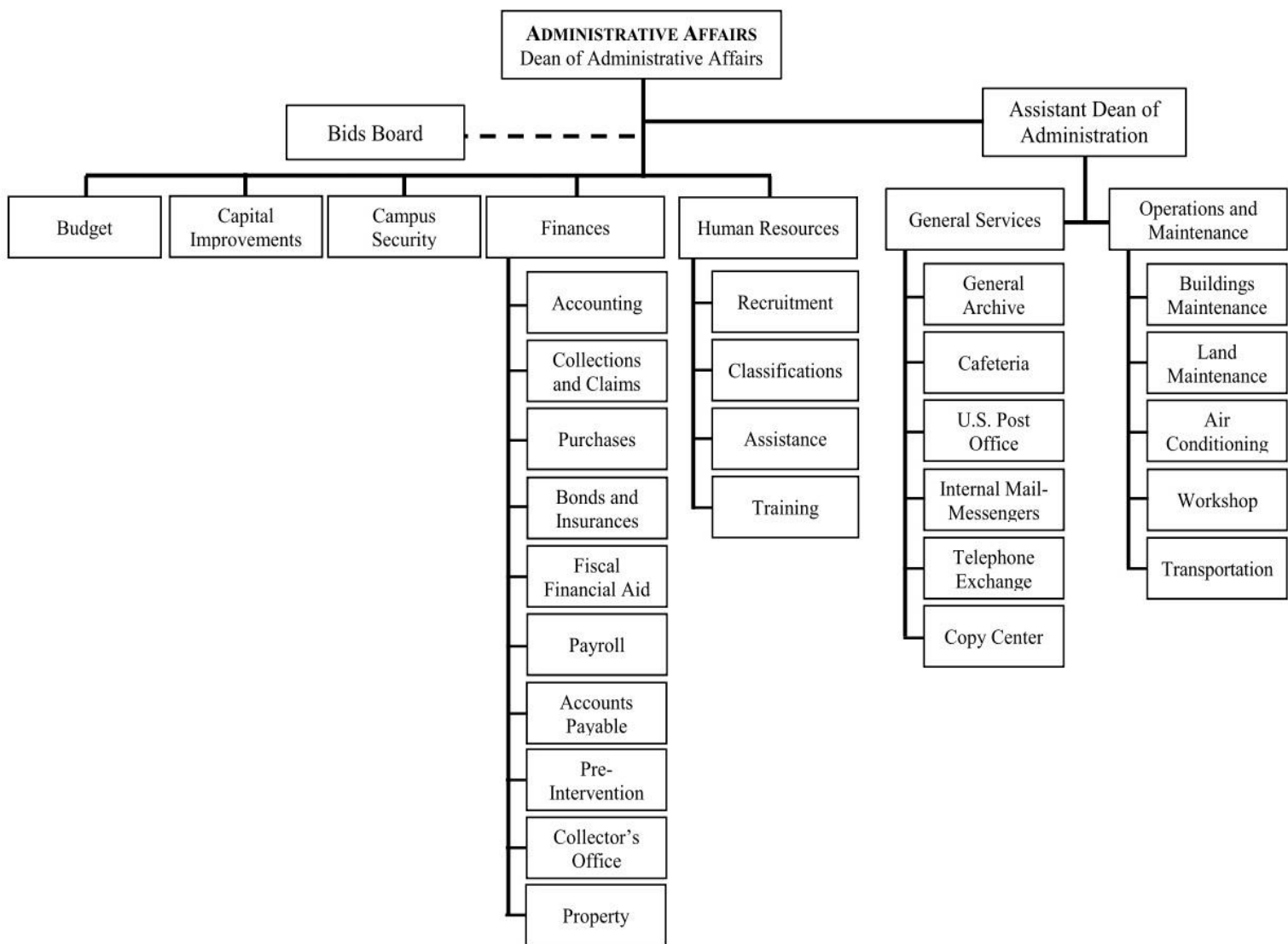
UPRA ORGANIZATIONAL CHART

UPRA Organizational Chart









ADMINISTRATION OF THE UNIVERSITY OF PUERTO RICO

Board of Trustees

LCDO. CARLOS DEL RÍO
DR. AGUSTÍN CABRER
DR. FELIPE CARRO
SRA. AIDA ÁVALO

President
Vice-President
Second Vice-President
Secretary

SRTA. MANUEL CORTÉS
SR. CARLOS J. DÁVILA
SR. FRANCISCO J. FANTAUZZI
LCDA. AURA GONZÁLEZ
PROF. LUIS GONZÁLEZ
CPA ANÍBAL GOVER
DR. NORMA MALDONADO

DR. CARLOS PÉREZ
LCDA. ISABEL PICÓ
SRA. MARISARA PONT
LCDA. IGRÍ RIVERA
ING. JOSÉ L. ROSADO
PROF. SYLKA TORRES

PRESIDENT OF THE UNIVERSITY OF PUERTO RICO

DR. MIGUEL A. MUÑOZ MUÑOZ

UNIVERSITY OF PUERTO RICO AT ARECIBO

PROF. JUAN RAMÍREZ SILVA
DR. MANUEL SAPONARA CUROTTO
PROF. JUAN PÉREZ GONZÁLEZ
PROF. DIÓMEDES PAGÁN NAVARRETTE
PROF. SORIEL SANTIAGO

DR. ELIANA VALENZUELA ANDRADE

Chancellor
Dean for Academic Affairs
Dean for Administrative Affairs
Dean for Student Affairs
Director of the Office for Planning and
Institutional Research
Associate Dean for Academic Affairs

ACADEMIC DEPARTMENTS

DEPARTAMENT	CHAIRPERSON
Biology	DR. RAQUEL VARGAS GÓMEZ
Business Administration	DRA. LISETTE MARRERO VALLADARES, DBA
Computer Science	PROF. MELQUÍADES ADAMÉS RAMOS
Education	SR. ILEANA ROMÁN RODRÍGUEZ

English
Humanities
Library
Mathematics
Nursing
Office Systems
Orientation and Counseling
Physics-Chemistry
Television and Radio Communications
Social Sciences
Spanish

PROF. JESÚS RAMÍREZ MORALES
DR. JOSÉ R. COLÓN FUENTES
PROF. VÍCTOR MALDONADO MALDONADO
PROF. JULIO BERRA PÉREZ
DR. DAVID REYES PÉREZ
PROF. INGRID DURÁN NIEVES
PROF. CELIA MEDINA MÉNDEZ
DR. CARLOS MALDONADO MAISONAVE
DR. JUAN LUCIANO NIEVES
PROF. JUAN PUIG HERNÁNDEZ
DR. EDUARDO ORTIZ MALDONADO

OTHER ACADEMIC OFFICES

Continuing Education and Professional
Studies
Registrar's Office
Student Support Services

MRS. ARLYN SERPA MERCADO
MRS. MILAGROS PITRE NIEVES
MS. NYDIA ARBELO RODRÍGUEZ

ACADEMIC SENATE

PROF. JUAN RAMÍREZ-SILVA
DR. MANUEL SAPONARA CURRUTO
PROF. JUAN PÉREZ GONZÁLEZ
PROF. DIÓMEDES PAGÁN NAVARETTE
PROF. VÍCTOR MALDONADO MALDONADO,
ex officio
MS. NILSA CRUZ
MR. HÉCTOR ARROYO SIERRA
MR. CHRISTIAN VIGOREAUX ALAGO

MS. SOLMARY GONZÁLEZ MARTÍNEZ
PROF. CYNTHIA CARDONA CUSTODIO
PROF. ÁNGEL BETANCOURT GARCÍA
D. MAIELLA RAMOS FONTÁN
PROF. NORMA TORRES HERRERO
PROF. JESÚS E. RODRÍGUEZ JIMÉNEZ
PROF. ZENOBIA TORRES RAMOS
DR. MATEO GARCÉS VALENCIA
PROF. SANDRA BARRERAS DEL RÍO
PROF. JADIRA MALDONADO RIVERA
PROF. ANNELIESSE SÁNCHEZ ZAMBRANA
PROF. CARMEN VALENCIA CABRERA

Chancellor
Dean for Academic Affairs
Dean for Administrative Affairs
Dean for Student Affairs
Library Director

President of the Student Council
Student Representative to the University Board
Student Representative to the Administrative
Board
At large Student Representative
Biology
Business Administration
Physics-Chemistry
Computer Science
Counseling and Orientation
Education
English
Humanities
Library
Mathematics
Nursing

PROF. MARITZA ROSA LAGUER
DR. OTILIO GONZÁLEZ CORTÉS
PROF. IVÁN F. MEDINA SANTIAGO
DR. ROSA DEL C. GONZÁLEZ MUÑIZ

Office Systems
Television and Radio Communications
Social Sciences
Spanish

ADMINISTRATIVE BOARD

Ex-officio:

PROF. JUAN RAMÍREZ SILVA
DR. MANUEL SAPONARA CUROTTO
PROF. JUAN PÉREZ GONZÁLEZ
PROF. DIÓMEDES PAGÁN NAVARETTE

Chancellor
Dean for Academic Affairs
Dean for Administrative Affairs
Dean for Student Affairs

Appointed:

PROF. INGRID DURÁN NIEVES
DR. LISETTE MARRERO VALLADARES

DR. CARLOS MALDONADO MAISONAVE
DR. DAVID REYES PÉREZ

Chair, Department of Office Systems
Chair, Department of Business
Administration
Chair, Department of Physics-Chemistry
Chair, Department of Nursing

Representatives of the Academic Senate:

PROF. ANA J. GÓMEZ MARRERO
PROF. EDGARDO CABÁN MERCADO
PROF. BLANCA M. ROLDÁN PLUMEY

Department of Education
Department of Business Administration
Library

Student Representative:

MR. ERNESTO G. GONZÁLEZ RODRÍGUEZ

Department of Business Administration

THE CHANCELLOR

The academic and administrative authority of the each UPR campus rests on the Office of the Chancellor. The Chancellor of the University of Puerto Rico at Arecibo oversees the Academic Senate, the Administrative Board and Faculty meetings. He/she has the authority to appoint, in consultation with the Academic Senate and the Faculty, the deans, the department chairpersons and office directors, university personnel, visiting professors and other types of visiting personnel.

The Chancellor rules on appeals to decisions made by the three deans. He/she represents UPRA in events, ceremonies and academic events. He/she formulates UPRA's budget project based on recommendations by the Administrative Board and other UPRA offices, and submits the proposed budget to the President of the UPR and submits an annual report of the activities at the University of Puerto Rico at Arecibo to the Board of Trustees.

OFFICE FOR PLANNING AND INSTITUTIONAL STUDIES

UPRA's Office of Planning and Institutional Research (OPIR) was created in the 1980-81 academic year. The Office is attached to the Chancellor's office. Its mission is to present evidence of the Institution's effectiveness in achieving its mission, goals and objectives. Through its endeavors, it supports and strengthens the academic and managerial affairs of the Institution, seeking to improve processes and facilitate strategic decision-making.

OPIR gathers and interprets data from the Institution and from the external community to help draft the plans that will guide the university as it seeks to meet its goals and objectives. Personnel from OPIR advises the university management in matters of physical, academic, programmatic, fiscal and professional matters, based on the internal and external conditions that will impact the implementation of action plans. The main functions of OPIR are listed below:

Planning consists in the gathering and analysis of not only institutional data, but also of data from the external community that bears of the present and future functioning of the University. Taking into account internal and external conditions that will affect the implementation of action programs to achieve the proposed objectives, OPIR advises on physical, academic, programmatic, fiscal and professional matters.

- **Planning**
OPIR coordinates the efforts dealing with institutional strategic planning. It continuously monitors and evaluates the results of the strategic plan. It also provides support to the various dependencies of UPRA in relation to the optimal budget

allocations and in the identification of strategies for academic, physical and fiscal planning. As part of strategic planning, OPIR directs the process for setting academic and administrative priorities, and ensures that these priorities are in line with the budgetary distribution and the institutional indicators of effectiveness.

- **Assessment**

This office promotes institutional excellence through a continuing process of assessment guided and organized through an Institutional Assessment Plan. The Plan includes the four areas of assessment: learning, other academic activities, student services and administrative processes. These activities are coordinated by an Institutional Assessment Committee. This committee ensures the implementation of the Institutional Assessment Plan and submits a yearly assessment report, which includes the excellence indicators included in this plan, which provide evidence about institutional effectiveness. OPIR and the Assessment Committee are also charged with the continuous dissemination of the results of the institutional assessment process.

- **Institutional Research**

This office identifies information needs and designs and conducts institutional studies to meet these needs. Personnel from OPIR coordinate the gathering and distribution of surveys and designs samples. The office maintains a continuous and systematic process for gathering data, which includes follow-up studies of incoming freshmen, second and third year students, graduates and alumni, which shed light on many of the academic and service activities. OPIR also identifies standards for benchmarking academic and administrative practices by comparing them to similar institutions. This area designs studies and research projects with the purpose of facilitating the decision-making process of the Institution. The institutional research projects support the planning, assessment and decision-making processes.

- **Statistics**

This office is responsible for collecting, presenting and disseminating statistical data related to university matters. It is also charge with the completion of questionnaires and fulfilling data requests by state and federal agencies and providing statistical data requested by the academic community.

- **Accreditation**

This office attends matters related to accreditation and licensing. It coordinates institutional efforts for the process of accreditation by the Middle States Commission on Higher Education and by Puerto Rico's Council of Higher Education of Puerto Rico. It contributes to the evaluation of the different programs and offices by keeping an extensive file of all essential institutional information required by accrediting agencies. It collaborates in professional accreditation for academic programs and services.

- **Institutional Planning**

Its primary function is to accomplish the continuing institutional strategic planning so that it serves as a working tool for decision-making, for assessment and for future planning. It supervises the decision-making process in the Institution, that it be based on the critical areas, the objectives and priorities stated in the Institution's Strategic Plan.

- **Systems and Procedures**

This office gathers information and helps in the revision of established systems and procedures according to the administrative reforms or new legal dispositions to ensure a high degree of efficiency, effectiveness and economy within UPRA's administration. It analyzes and evaluates the design and use of handbooks, guidebooks and forms in use in the various dependencies of the university. It is also responsible for informing the community of the procedures and systems that are adopted.

OFFICE OF THE DEAN FOR ACADEMIC AFFAIRS

The Office of the Dean for Academic Affairs is the administrative unit in charge of coordinating the processes pertaining to academic departments and programs. Its main function is to formulate the official directives that guarantee the well-functioning of the academe. As an administrative unit, this Office is constituted by the Dean for Academic Affairs, the Associate Dean and two administrative officers.

Staff from this office, coordinates and supervises academic initiatives, furthers academic excellence by diversifying offerings and strengthening programs, supports academic research in the areas of sciences, humanities and education so that the content and methodology of courses can be continuously updated, encourages new academic proposals, and evaluates existing academic programs.

The Office of the Dean for Academic Affairs includes a Faculty Personnel Committee, thirteen (13) academic departments, the Library, the Division of Continuing Education and Professional Studies, and the Registrar's Office. The Associate oversees Admissions, Special Academic Programs, the Tutoring and Mentoring Center, the Honors Program, Student Support Services Program, the Distance Education Program, and the Faculty Improvement Center.

OFFICE OF THE DEAN OF STUDENT AFFAIRS

The Office of the Dean for Student Affairs is the administrative unit that manages, coordinates and supervises a variety of programs and services for the students of this university.

The following offices are overseen by this Office: Counseling,, Financial Aid, and Medical Services. It also provides a Student Center, Student Organizations, Music Groups, a Child-care Program, a Student's Ombudsman, and an Office for the Affairs of Persons with Disabilities, Identification Cards, Career Center, and the Quality of Life Office.

The Office of the Dean for Student Affairs is in constant communication with public and private agencies and organizations which help the Institution offer better services to students. It also maintains close communication with the Offices of the Deans of Academic and Administrative Affairs in order to coordinate services effectively and efficiently.

OFFICE OF THE DEAN FOR ADMINISTRATIVE AFFAIRS

The Office of the Dean for Administrative Affairs provides support and service to all of UPRA's community, that is, students, faculty and administrative personnel.

This Office is constituted by the following offices: Finance, Operation and Maintenance, Security and Surveillance, Permanent Improvements and other General Services, such as Telephone Switchboard, Federal and Internal Mail Service and General Archives.

The tasks performed by these offices include security, personnel actions, fiscal operations, purchases and supplies, operations and maintenance of all facilities, as well as dealing with the logistics of all academic and student activities.

ADMINISTRATIVE BOARD

This body advises the Chancellor on the exercise of functions pertaining to the responsibilities of the post, makes plans and projects for development, considers the Institution's projected budget, and awards, upon the Chancellor's recommendations, leaves, academic ranks, tenure and promotions to the teaching and non-teaching personnel in accordance with the General University By-Laws.

ACADEMIC SENATE

The Academic Senate is the official forum of the academic community, where the general problems affecting the Institution are discussed. It is composed of the Chancellor, the Dean for Academic Affairs, the Dean of Administrative Affairs and the Dean of Student Affairs, the Director of the Library, elected faculty representatives, and student representatives.

The Academic Senate determines the general orientation of academic programs and establishes the institutional policy on research. It also establishes the general norms for hiring, tenure, promotion in rank and leaves of faculty, and the general requirements for admission, promotion and graduation of students. Furthermore, it makes recommendations to the Board of Trustees on the creation or reorganization of dependencies at UPRA, and for the creation and award of academic honors. It makes recommendations to the University Board about projects, and amendments to the General University By-Laws and the General Student Regulations.

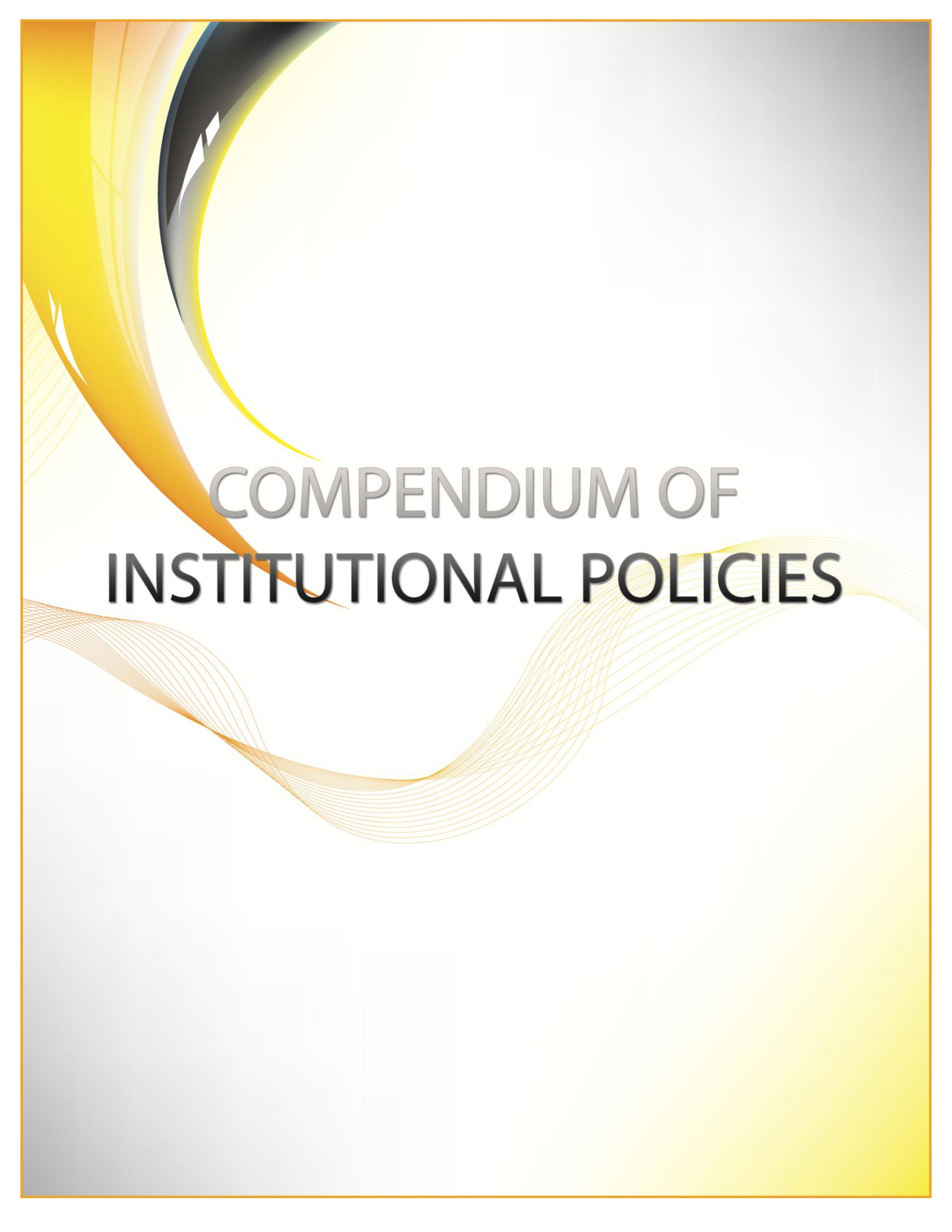
STUDENT COUNCIL

Students are an essential part of the university community. Their rights and duties are defined in the General Student By-Laws. Students are represented before the university administration by the Student Council. Furthermore, there are student representatives in all directive bodies.

The Student Council fosters communication among students, faculty and non-teaching personnel. The Student Council aims to make students aware of rights, privileges, duties and obligations. Furthermore, it encourages the student community to maintain institutional order. Student Council representatives are elected according to the procedures established in the Student By-laws.

The Student Council has the following attributions and responsibilities:

- serve as the official representative of the student body
- present before the corresponding authorities all problems affecting the student community
- promote student activities
- strive to create an intellectual atmosphere to promote student development
- contribute to improve communication among the various components of the college community.



COMPENDIUM OF INSTITUTIONAL POLICIES

The University of Puerto Rico at Arecibo complies with all applicable Federal and state laws and with UPR system regulations. The Institution does not discriminate on the basis of gender, color, place of birth, age, physical or mental handicap, origin, social condition, religious or political convictions in any and all the activities or programs sponsored by the UPR system. UPRA has two documents that regulate its governance and organization, *the General University Bylaws* and the *Student Regulatory Handbook* that spells out students' rights and obligations in all aspects of institutional life. Copies of these regulations are available at the Office of the Dean of Students.

STUDENTS' RIGHTS AND OBLIGATIONS

The fundamental right of a student of the University of Puerto Rico is the right to receive an education. This right is not limited to formal activities in the classroom, but also encompasses the totality of the student's interaction with other students, professors, researchers, university administration and the rest of the community. The student's primary obligation is to exercise this right to the fullest, and to behave in such a way that allows the other members of the university community to equally exercise their rights and comply with their obligations.

The *General Student Regulatory Handbook* includes the rights and obligations of students relating to academic life, to participation in aspects of institutional life, complementary institutional services, academic norms, sanctions to be applied when a violation of the norms occurs, and the procedure for their application.

RIGHTS AND OBLIGATIONS IN THE STUDENT- PROFESSOR RELATIONSHIP **(UPRA Academic Senate Certification 2006-07-27 as Enmended)**

Course related work is the focal point of the student-professor relationship. Instructors shall foster creative dialogue and freedom of expression in the students. Students shall have the opportunity to present fundamental objections to the data and opinions presented by their professors. Each one shall examine aspects of the discipline according to the norms of intellectual responsibility proper to academic labor. Neither shall use the classroom as a forum to preach political, sectarian, religious or other doctrines foreign to course content. The right to dissent does not relieve students of the responsibility of fulfilling a course's requirements. Students will be evaluated on the basis of their academic performance.

The fiduciary nature of the student-professor relationship shall be honored by both, and by the university administration. The opinions and beliefs expressed by students in the classroom are privileged and students have the right to expect that professors do not

divulge them to third parties. This shall not impede professors from stating their opinion about the students' character and abilities, or from discussing the students' academic performance and formative progress with colleagues.

Certification 2006-07-27 as ammended by the UPRA Academic Senate defines the student-professor relationship in class, and establishes, among other things, the following:

- During their first week of class students will receive an orientation about the material to be discussed in the course and the evaluation criteria to be used. The evaluation criteria should be handed in to the students by the professor. These will not be arbitrarily altered or modified by the course professor. If changes need to be made to the evaluation criteria used in class, the professor should discuss these with the students.
- Every course has a syllabus developed by the corresponding academic departments. The professor may also provide the students with a summary which includes his or her office hours, textbooks to be used and a bibliography, among other information.
- **Class time:** A one hour class equals 50 minutes of lecture time. The remaining 10 minutes allow the students to move from one classroom to another. Two or more hour classes equal an hour and 15 minutes of lecture, providing 5 minutes for the students to move from one classroom to another.
- **Exams and grades:** Professors will grade exams and classwork in a period no longer than three weeks.
 - Exams and quizzes will be announced with at least three days. The course syllabus might also include unannounced quizzes.
 - The student has the possibility to know his/her grades before the scheduled time to withdraw. 50% of the evaluation weight should have been administered, corrected, and informed previous to the partial withdrawals date in the case of regular students.
 - In the case of students' claims, the professor must provide evidence of the student's grades. The professor must also keep evidence of these grades until the date scheduled for changing grades; one semester after the course was given.
 - Students are not obliged to take exams or classes scheduled at a time different from the one established by the department. Departmental exams are the only exception for a class to meet at a different time. Changing the time of a class can only be made through a unanimous decision between students and the professor.
 - In case of absence, the professor may schedule a class makeup by agreement with the majority of the students present. Those students who cannot be present during the scheduled class makeup will have the opportunity to meet at another time in agreement with the class professor.
 - Final exams are administered during the day and time assigned by the

Registrar's Office.

- Students will not have any academic obligation during the days assigned for class review scheduled before final exams.
- Professors may indicate their absences, those permitted with a reasonable excuse, in the tentative schedule included with the syllabus. They will also explain to the students how absences can affect their grade.

The student-professor relationship outside the classroom is part of the educational process. Students will have the right to meet with their professors at hours reserved for this purpose to seek orientation and discuss aspects of their academic work

Students' academic and disciplinary dossiers will be kept separate from each other. The information in the disciplinary dossier shall not be available to non-authorized persons from within or outside of the university without the students' consent, except in the case of a judicial ruling. Students' political beliefs will not be recorded anywhere.

EQUAL OPPORTUNITIES

The University of Puerto Rico guarantees equal opportunities to its students, employees and prospective students or employees. Likewise, the Institution guarantees equal opportunities in the enjoyment of academic programs and services, as well as in the terms and conditions of employment. The University does not exclude nor withhold benefits or discriminate against any person by reason of age, race, origin, social condition, physical or mental disabilities, nor for political ideas or religious beliefs. In case that a student, employee or 'prospective student or job candidate feels that they have been discriminated against by any of the aforementioned reasons, the individual can file a written grievance with the official designated to receive it.

The establishment and compliance with this policy, as well as its publication, comply with the Title IX Federal Regulations, 1972 Educational Amendments, Section 504 of the 1973 Rehabilitation Law, and with the American with Disabilities Act (ADA) of 1992.

STUDENTS' HEALTH INSURANCE

It is the policy of the Institution that all students subscribe to the health insurance contracted by the University of Puerto Rico, unless students provide evidence of being covered by a private, family or individual health plan.

SEXUAL HARASSMENT

Sexual harassment in the workplace and in the academic field is an illegal and discriminatory practice, harmful to institutional interests. The University of Puerto Rico will not permit sexual harassment in the Institution, regardless of the hierarchy or position held by the persons who might be involved. Under no circumstance will any persons be allowed to conduct themselves in any way that might be construed, directly or indirectly, as sexual harassment or sexually discriminatory practices in the administrative or academic workplace.

The legal basis for the Institutional Policy on Sexual Harassment is PR Commonwealth Law No.17 of April 22, 1988. The Institutional Policy on Sexual Harassment is based on the following precepts:

1. Sexual harassment can occur between people of the same sex and people of different sex.
2. No person is obliged to permit, accept, submit to or tolerate unwelcome acts or insinuations of a sexual nature.
3. Sexual harassment consists of any type of unwelcomed sexual approach, requirement for sexual favors, or physical or verbal behavior of a sexual nature when this conduct is present in one or more of the following circumstances:
 - When submitting to such conduct is implicitly a condition for employment or the study environment.
 - The submission to or rejection of such conduct is the basis for decision making in the place of employment or for academic evaluation.
 - If such conduct has the effect or purpose of unreasonably interfering with the performance of work or academic labor.
 - If such conduct creates an intimidating, hostile or offensive environment

To suspend, deny employment, fire; deny, withhold an examination, withhold grades, or deny approval of an examination, grades, or papers or in any other way affect a person by reason of the person's sex or circumstances or conditions inherent to the person's sex is an illegal practice.

The Institution has the obligation to investigate claims of sexual harassment committed inside the Institution by persons who are not members of the university community and take appropriate action, within the bounds of its control, with the accused. Moreover, the Institution shall take any other appropriate legal action required. To determine if the conduct denounced constitutes sexual harassment, the totality of the circumstances surrounding the alleged act will be taken into account. Examples of inappropriate conduct are flirtatious remarks, sexual insinuations, lustful looks, commentaries or jokes with a sexual tone, kisses, groping, sexual aggressions and the creation of an intimidating, hostile and offensive environment, among others.

Recommendations to possible victims of sexual harassment

1. Express to the harasser your rejection of his/her conduct and intentions.
2. Inform or ask your supervisor or any member of the academic or administrative community to intervene and attend to your written or verbal grievance.
3. Take note of the incidents, including hour, place and the name of the persons involved.
4. Notify a person you trust, be it a co-worker, friend, a fellow student or a family member of the situation.
5. Demand and keep copies of academic or work evaluations.
6. If you choose to drop a course or abandon your job, indicate in writing the circumstances forcing you to take the decision and send the complaint to the Dean of your faculty or to the Director of Human Resources.

Claims

A person who has been the victim of sexual harassment may seek help, personally or in writing from the following officials: the Labor Delegate, the Department Chairpersons, the Dean of Student Affairs, the Dean for Academic Affairs, the Students' Ombudsperson, the Director of Human Resources or the University's legal consultant.

PRIVACY OF ACADEMIC RECORDS

The University of Puerto Rico, in compliance with the Family Educational Rights and Privacy Act of 1974, as amended, affirms the following precepts:

1. Students have the right to examine their academic record.
2. Students have the right to ask for amendments to their records to correct data that might be wrongly understood, or that violate their right to privacy or other accorded rights.
3. Students' consent is necessary before divulging any information of their academic record.
4. Students have the right to file a grievance against the University of Puerto Rico for alleged violations of the aforementioned conditions.

Claims related to the violation of the right to privacy must be filed at:

Family Policy Compliance Office
U.S. Department of Education
600 Independence Avenue, S.W.
Washington, DC 20202-4605

CAMPUS SECURITY AT THE UNIVERSITY OF PUERTO RICO

The University of Puerto Rico recognizes the protection of the life and security of its members and the prevention of criminal acts within its grounds as legitimate institutional interests. The Institutional Policy on Campus Security agrees with Public Law 101-542 known as the Students Right to Know and Campus Security Act and other Federal and state laws that require the existence of specific institutional norms to this effect. This policy's objective is to promote and maintain a study and work environment secure, free of risks, violent acts and danger. It also recognizes the right of students, of prospective students and employees, and the community in general, to receive information of criminal acts that have occurred inside the university grounds and adjacent areas.

Any persons who by their actions, or by omission, violate state or federal regulations will be subjected to the disciplinary measures stated in the university regulations. They can also be indicted of a crime according to the applicable state and federal laws.

The University of Puerto Rico prepares and publishes an annual report called *Security Handbook* which includes institutional policy, procedures, sanctions, student services, security measures, emergency telephones and statistics on campus crime. Copies of this handbook are available at the Office of the Dean for Student Affairs and at the Office of the Dean of Administrative Affairs.

ILLEGAL USE OF DRUGS AND ALCOHOL ABUSE

The use of drugs and the abuse of alcohol are harmful to the well-being and development of human beings, having a negative impact on the biological, social, psychological and spiritual functioning; these reduce the capacity for learning and practicing the knowledge attained, besides compromising the person's physical security and that of his/her fellow students.

The University of Puerto Rico, aware of the seriousness of the problem that the possession, distribution and use of drugs, and the abuse of alcohol constitute for the Puerto Rican and university communities, has the firm goal of fostering a healthy environment for study and work and promoting positive attitudes that lead to integral health, and that contribute to a social environment that is favorable to the intellectual, physical and emotional wellbeing of the community.

The Institutional Policy and the Regulations on the Illegal Use of Drugs, Controlled

Substances and Alcohol Abuse are adopted in agreement with the applicable dispositions of Article I of the Law of the University of Puerto Rico, as amended, and in agreement with Article 14, Section 14.10.13 of the General Regulatory Handbook of the University of Puerto Rico. It is also based on the Law of Drug-free Workplaces, 1988, 41 U.S.C.A. 1011 h y 1011 i, as amended, and the regulations adopted by the US Department of Education to implant the said laws, 34C. F. R. parts 85 and 86; C.F.R., sub part 23.5.

In accordance with this legislation, that establishes the affirmative responsibility of educational institutions toward their students and employees to prevent and penalize the illegal use of controlled substances and alcohol abuse within the university grounds and in activities sponsored by the University of Puerto Rico, the University adopted an vigorous policy on the illegal use of drugs, stated in Certifications No. 032 and 033, 1999-2000 Series of the Board of Trustees. The goal of this policy is to effectively prevent, within the Institution and in official activities outside, the manufacture, distribution, possession and use of illicit controlled substances, and also the abuse of alcohol. Both Certifications apply to the whole university community. It is the responsibility of all, with no exceptions, to comply with the norms therein established.

The University of Puerto Rico is responsible for the enactment of this policy and is charged with developing and maintaining an educational and service program, for the proactive prevention, assistance and referral of members of the university community.

NO-SMOKING POLICY (P.R. LAW 40)

In accordance with the P.R. Commonwealth Law 40, August 3, 1993, 24 L.E.P.R.A. Section 892, that forbids smoking in enclosed spaces such as classrooms, auditoriums, libraries, museums, corridors, cafeterias and restrooms, the University of Puerto Rico prohibits smoking in such places. Persons who desire to smoke may do so in areas such as parking lots, balconies or open terraces.

ENVIRONMENTAL POLICY

The University of Puerto Rico in complying with its responsibilities to the community, and as an agent for social change is firmly committed to assume a leadership position in solving the existing environmental problems by proposing concrete alternatives to their solution.

The following are the objectives of the UPR Environmental Policy:

1. Implementing the Commonwealth of Puerto Rico's Environmental Policy, adapted to the institutional reality, and serve as a model for the implementation of this

- policy.
2. Establishing forums for the discussion of environmental problems relevant to Puerto Rico, the Caribbean, and the world.
 3. Contributing ideas and participate in the public discussion of environmental problems.
 4. Designing methods to comply with the environmental protection laws and regulations applying to the University of Puerto Rico.

POLICY FOR THE ACCEPTABLE USE OF INFORMATION TECHNOLOGY RESOURCES THROUGH THE UNIVERSITY OF PUERTO RICO

The Board of Trustees of the University of Puerto Rico's Certification No. 35 2007-2008 Series establishes the institutional policy to ensure the appropriate use of information and telecommunication technologies by the university community, the persons servicing the University of Puerto Rico, external clients and users of the University's information and telecommunication systems. This system-wide (Certificate No. by the Board of Trustees)¹ applies to all users of the University of Puerto Rico's Information Technology (IT), including but not limited to students, faculty, researchers, and staff. Third parties who use any part of the University's Information Technology are also subject to this Policy, including when they connect proprietary equipment to the University network or install proprietary software on University computers. Unawareness of the existence of this Policy, or of any part of this Policy, does not excuse users from its compliance.

This Policy aims to achieve the following:

1. Safeguard the integrity of computers, computer-related equipments, networks,
2. systems, programs, and data, regardless of whether or not these are located on
3. University grounds;
4. Ensure that use of electronic communications complies with applicable
5. University, Commonwealth, federal and international laws, policies, norms, and
6. procedures;
7. Protect the University against damaging security and legal consequences.

Policy Statements

It recognizes that computers, networks (including wireless networks), and electronic information systems are essential resources for accomplishing the University of Puerto Rico's mission of instruction, research, and service outreach. The University grants

¹ The Policy is formulated in compliance with all applicable dispositions of the University of Puerto Rico Act, Law No. 1 of January 20, 1966, as amended, and the General Regulation of the University of Puerto Rico. The complete document can be found in the following e-mail address: <http://www.certifica.upr.edu/certificaciones/External/Certificaciones.aspx>

members of the University community shared access to these resources - as well as to local, national, and System-Wide Policy for the Acceptable Use of Information Technology Resources international sources of information - in support of accomplishing the University's mission.

These resources are a valuable community asset to be used and managed responsibly to ensure their integrity, security, and availability for appropriate educational, research, service, and other institutional activities. Users are required to use IT resources effectively, efficiently, and responsibly; in a manner that does not affect the quality, timeliness, or delivery of a person's work to the University nor hamper the rest of the community's ability to conduct their work for the University.

Freedom of expression and an open environment for learning and sharing information are valued, encouraged, supported, and protected at the University of Puerto Rico. Censorship is incompatible with the goals of an institution of higher education. Research and instruction take many forms. Therefore, information accessible from available electronic sources may not be restricted through censorship, as long as this information is not constrained by law or regulations and it is used for lawful purposes. The University will promote the appropriate use of technology, mainly through education, to encourage responsible management of technology and the information that is accessed. Access to the information resource infrastructure both within and outside University grounds, sharing of information, and security of intellectual products, all require that every user accept personal responsibility for protecting the rights of the community. Users should be aware that actions conducted using information technology will be held to the same standards as any other action in the work place. The University will deal promptly with all violations of any law or university policy.

User's Rights and Responsibilities

As part of the User's Rights and Responsibilities, members of the University community are granted access to information technology resources in order to facilitate their University-related academic, research, service, and job activities. Occasional personal use of information technology is allowed, as long as this personal use does not interfere with job performance nor violate any existing policy, regulation, or law. Assessment of an employee's job performance may consider the employee's personal use of information technology resources; and a supervisor may request a change in this personal use as a condition for continued employment, if deemed necessary.

A. Use Means Acceptance of Policy and Norms

By using the University's information technologies, users agree to abide by this Policy, as well as all relevant University policies, norms, and procedures, and current federal and Commonwealth laws. Users are responsible for the following tasks:

1. Review, understand, and comply with all policies, procedures and laws related to access, acceptable use, and security of University information technology resources;
2. Request system administrators or data custodians for clarification on access and acceptable use issues not specifically addressed in University policies, regulations, standards, and procedures; and
3. Report possible policy violations to the appropriate entities.

B. Privacy and Security Awareness

The University recognizes the user's right to privacy and security; and will take reasonable measures to protect the security of the information technology resources assigned to individual users. The user's personal information will be maintained in a secure environment; and only accessed by authorized employees that need the information to do their job. Should the need arise to intervene with a person's right to privacy in the course of any investigation regarding inappropriate use of information or technology resources, the University will do so following existing legal procedures. Users should follow the appropriate security procedures to assist in keeping equipment, systems, applications, and accounts secure. These procedures are available through the System or Campus Information Systems Offices (ISO).

C. Consequences of Violations

Access privileges to the University's Information Technology resources will not be denied without cause. The University may temporarily deny access to these resources if, during the course of an investigation, it appears necessary to protect the integrity, security, or continued operation of its computers, systems, applications, and networks or to protect itself from liability. Alleged violations of University IT policies shall be referred to appropriate University officials for resolution or disciplinary action.

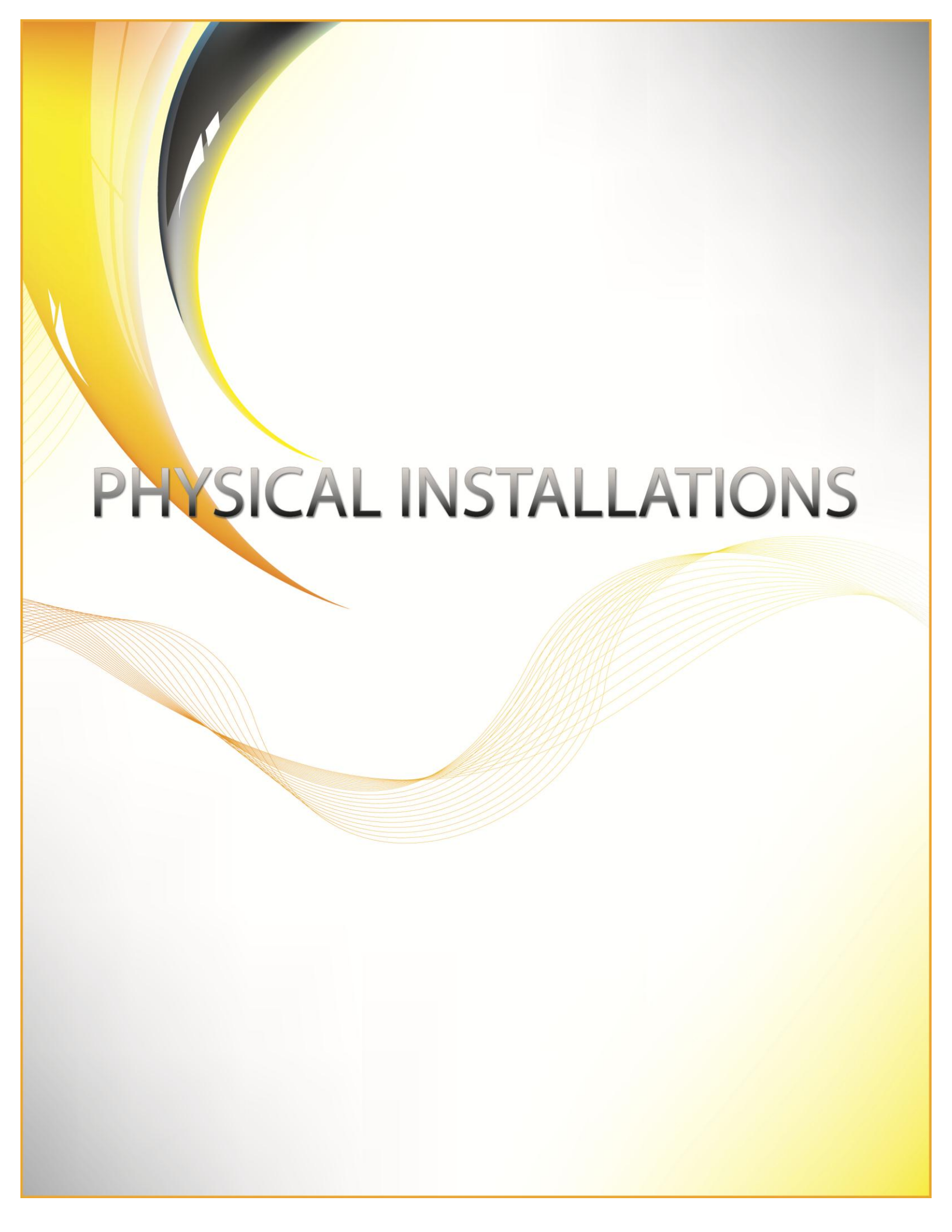
The University may also refer suspected violations of the law to the appropriate law enforcement agencies. Depending upon the nature and severity of the offense, policy violations may result in loss of access privileges, University disciplinary action, and/or criminal prosecution.

The University's Rights and Responsibilities

The University owns the applications, systems, computers, and networks that comprise the University's technical infrastructure. Likewise, the University owns all data that reside on this technical infrastructure; and is responsible for taking the necessary measures to ensure

the integrity, security, and confidentiality of its systems, applications, data, and user accounts.

When the University becomes aware of violations, either through routine system administration activities, audits, or from a complaint, it is the University's responsibility to investigate as needed or directed, and to take whatever necessary actions to protect its resources and/or to provide information relevant to any investigation underway. University offices, campuses, faculties, and facilities shall cooperate and work alongside appropriate University and law enforcement officials investigating these violations.



PHYSICAL INSTALLATIONS

The physical installations of the University of Puerto Rico at Arecibo (UPRA) include several buildings. The Central Building has several extensions or wings. At the center stand the Chancellor's Office, the Office of the Deans for Administrative Affairs, Academic Affairs and Student Affairs. Its several wings house 13 Academic Departments, a Computer Center, 48 classrooms, 13 science and engineering laboratories, 14 laboratories or practice workrooms, and 11 computer laboratories. It also houses radio and television studios and two photography laboratories. UPRA has a theater with capacity for 500 persons and two auditoria: (1) Auditorium B, attached to the Dean for Academic Affairs and (2) the Nursing Auditorium attached to that Department. The facilities that house the Division of Continuing Education and Professional Studies (DECEP in its Spanish acronym) are located in the South wing of the main building, next to the Nursing Department.

The west wing of the Central Building holds the Cafeteria and the Student Center. The center also houses the offices for the Student Support Services Program, the Medical Services, and several student organizations. The print shop and the graphic arts facilities are located in the lower level of this wing.

The Title V facilities are located next to the main building. These include three computer laboratories used by CADA and CDATE for providing web-based instruction and tutoring services.

Next to the main building are the workshops and warehouse buildings, the chemical reagents warehouse and a small structure which houses the Traffic and Security Office. The university also has a Sports Complex which includes a covered arena, an athletic track, and tennis courts and sports field. There are parking spaces for about 900 cars. There is also a Day-Care Center housed in a rented building nearby, but outside institutional grounds.

The University of Puerto Rico at Arecibo has a Library building with an approximate area of 42,000 square feet in two levels. The first level houses the following collections and services: Circulation, Reserve, the Children's Library, the Arecibo Room, the University's Historical Archive, the Center for Environmental Information, and the Room for Visually Challenged Persons. Also at this level are photocopying areas, the Offices of Academic Research and 11 carrels for use by faculty members. The Library's administrative offices and the Collections' Development Area are also in this level. The second level of the building has 8 rooms for group study, a Video-Conference and Distance Education Room, the Data Bases Area and writing room (computers), Reference, Periodicals, and Multi-media areas.

**PROCEDURES:
ADMISSIONS, REGISTRAR,
BURSAR & COMPLAINTS**

ADMISSION PROCESS

REQUIREMENTS FOR REGULAR ADMISSIONS

ADMISSIONS POLICY AND REGULATIONS (UPR BOARD OF TRUSTEES CERTIFICATION 25-2003-2004)

Admissions Requirements for High School Students

Any graduate from an accredited high school or its equivalent who has never pursued college level courses must submit an admission application in order to be admitted to the University of Puerto Rico at Arecibo. The admission application is only valid for admission for the fall semester. All submitted documents become the property of the University of Puerto Rico at Arecibo.

Candidates for admission must meet the following criteria:

1. Hold a high school diploma, or its equivalent, conferred by an educational institution duly accredited by the Puerto Rico Department of Education. Applicants who have taken the equivalency examination, English version (GED), should request the conversion of the results and a grade report from the Department of Education.
2. Have taken the College Entrance Examination within the five years prior to the application.
 - a. All applicants must take the Academic Aptitude tests (Math and Verbal skills) and the Achievement Tests in Mathematics, English and Spanish offered by the College Entrance Examination Board (CEEB). These tests are offered in June, October and February.
 - b. Applications for the CEEB exam may be obtained from the College Entrance Examination Board, Call Box 71101, San Juan, Puerto Rico 00936-7501 (Telephone 787-754- 8625). Applicants may also register online at the following web site: <http://oprla.collegeboard.com>.²
 - c. Instead of the CEEB, students may choose to take the Scholastic Aptitude Test (SAT I) along with three Achievement Tests in English Composition, Level I Mathematics and Spanish Reading Comprehension. The ELPT examination is not equivalent to the SAT II in English, so it is not an acceptable substitute.
 - d. Students interested in taking the Scholastic Aptitude Test (SAT) and the Subject Test II (SAT) may contact Educational Testing Service, Box 1271, San Juan, Puerto Rico 00936 (Telephone 787-753-6363) or they may access <http://collegeboard.com>.
3. Submit an admissions application on or before the date established by the University of Puerto Rico. The Admission Form will be available at the Admissions Office of the

² Starting on 2012, applications will only be made online.

University of Puerto Rico, in public high schools throughout the island and, on line, at www.estudiantes.upr.edu. The application fee is twenty dollars with a surcharge of ten dollars for late applications. Payment may be made by money order or check payable to the University of Puerto Rico, at any campus of the UPR or at any branch of the Banco Popular de Puerto Rico. When the process is realized online, the payment can be done in the same way.

The Selection Process

A formula for computing a General Admissions Index (GAI) has been established to determine who may be admitted to any of the units of the University of Puerto Rico. This formula is applied equally to all applicants. The formula assigns a value of 50% to the applicant's high school average and 50% to the score obtained in the both the Mathematical Reasoning exam and in the Verbal Aptitude exam of the College Entrance Examination administered by the CEEB or SAT I.

Each year a minimum admissions index is established. Each UPR unit select their students according to their admissions index, in descending order, until all available places are filled or the minimum index is reached, whichever happens first.

Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

Applicants from High Schools in Foreign Countries

Students graduating from high schools in foreign countries must also comply with the following requirements:

1. Submit an official academic transcript of their secondary education in the vernacular of their country of origin. A Spanish or English translation of the transcript must be submitted, certified by the Ministry of Education of the country of origin and by the American consulate.
2. Submit official explanatory evidence of the grading system, the contents and level of courses taken and the number of meeting hours assigned to each course.
3. Submit evidence of all degrees and diplomas obtained.
4. Take steps to obtain a certification of equivalency for the degree from the Puerto Rico Department of Education.
5. Submit evidence of economic resources to study in Puerto Rico.

Note: Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

Admission Requirements for Students Accepted on the Basis of Special Skills (UPR Board of Trustees Certification 25 2003-2004)

The University of Puerto Rico at Arecibo will authorize admission to a limited number of students on the strength of their special abilities, talents or conditions. In order to be admitted on the basis of special skills, talents or exceptional circumstances students must meet the following requirements:

- A minimum high school average of 2.00 or approval of high school equivalency examination administered by the Puerto Rico Department of Education.
- Take the required admissions exams
- Applicants must indicate in the application form that they possess exceptional talents or skills.
- The difference between the applicant's GAI and the minimum required for admission to their program of choice shall be no more than 20 points.

The total number of students admitted under this category will be subject to availability of spaces in each academic program and shall not, in any case, exceed 2.2% of the total number of students admitted to the university.

Every year, the Office of Admissions of the UPR Vice-presidency for Academic Affairs will send each unit a list of those students who qualify for admission under this category. These are the only students that may be considered for admission.

An advisory committee designated by the Chancellor will evaluate the cases referred by the Admissions Office and submit their recommendations to the Chancellor's Office. This committee will set the criteria for admissions on the basis of exceptional talents or skills. The Chancellor will have the final authority to grant admission to these applicants.

The Admissions Office will submit a report to the Office of Vice-President for Academic Affairs including the names of the students admitted on the basis of special skills. The report will also include the special ability, talent or condition, the academic program to which students were admitted, co-curricular activities and any agreement of services according to the category indicated.

The Registrar's office will submit a report to the Office of the Vice-President for Academic Affairs comparing the retention rate and academic progress of students admitted on the basis of special skills, talents or exceptional conditions to students admitted on the basis of their academic potential.

Note: Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

Regulations for Admission for Applicants from Other Universities (Transfers) (UPRA Academic Senate Certification 2007-08-24)

Applicants for transfer are students who have never studied at the University of Puerto Rico System and who are enrolled in another duly accredited university:

Transfer requirements are the following:

1. Filing an application for transfer before the deadline established in UPRA's academic calendar. There is an application fee of \$33.00. Late application fee is \$49.50.
2. Candidates must obtain an official transcript from each of the institutions where they have studied. These should be received 15 working days before the date established on the calendar.
3. Completar el Certification of Clearance en las instituciones donde haya cursado estudios universitarios. Candidates must not be subject to any disciplinary or academic sanction in their institution of origin.

Requirements and General Regulations

Transfer candidates must meet the following criteria:

- Must have approved 24 credits at the time of application with a minimum academic index required by the academic department.
- Students with less than 24 credits must comply with the following:
 - Current results of the University's entrance examination.
 - Have the required GPA as established by the academic program in the year for which the candidate is applying.

Criteria for the evaluation of the applicants' academic records

- Pre-basic or preparatory courses will not be considered for validation or to calculate the number of credits completed or the general average.
- Courses passed with a D will be considered to calculate the number of credits approved and the student's general average, but will not be transferable.
- Courses with a grade of F will be considered when determining the general grade point average.
- It is the responsibility of the candidate to know about other requisites established by the academic departments.
- Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

Additional Requirements for Transfer Applicants from Foreign Universities

1. Submitting an official academic transcript of their secondary education in the vernacular of their country of origin. A Spanish or English translation of the transcript must be submitted, certified by the Ministry of Education of the country of origin and by the American embassy.

2. Submit evidence of all degrees and diplomas obtained.
3. Submit official explanatory evidence of the grading system, the contents and level of courses taken and the number of meeting hours assigned to each course.
4. Present evidence of proficiency in Spanish and in English.
5. Submit evidence of economic resources to study in Puerto Rico.
6. The University of Puerto Rico will ask, as an additional requirement to foreign students, a course by course evaluation from World Education Services, Inc. (www.wes.org).

Hours:

The Admissions Office is open to the public Monday through Friday from 8:00 a.m. to 12:00 and from 1:00-4:30 p.m.

REGISTRAR'S OFFICE

The Registrar's Office receives, organizes and preserves the documents pertaining to the academic activities of the students. The web address is: <http://registro.upra.edu>.

SERVICES

REGULAR HOURS		EVENING HOURS	
Monday-Friday	8:00 a.m.-12:00 m. 1:00 p.m.-4:30 p.m.	Wednesday (Bursar's Office)	4:30 p.m.-7:30 p.m.

ONLINE REGISTRATION

- Students will pre-register on the internet (will select courses and sections for the following semester) in their department during the dates set for this purpose in the Academic Calendar.
- Newly admitted students will receive a PIN (password) to gain access to internet registration.
- Every student must also fill the section related to the Buckley Law. Any changes to the information on this form may be made at the Registrar's Office.
- Students who do not pre-register must request their courses in each of the corresponding academic departments on the day assigned. They must pay their tuition and fees at the Bursar's Office.
- Students select and pay for courses and services to which they will be entitled during a given semester. Students are only authorized to attend the courses and sections

indicated in their class schedule for that semester.

CHANGES IN COURSE SCHEDULE

Changes are sometimes necessary during the registration procedure because sections are cancelled, or students fail the pre-requisites for their selected courses. In this case, students must go to the corresponding department to have the course erased from the class schedule and proceed to complete the procedure for payment and will receive a new class schedule at the Bursar's Office.

Once the registration process is finished, students are responsible for verifying their class schedule to ensure that they are registered for the courses chosen, and to verify whether the courses are correctly designated as Grade or No-Grade according to their curriculum. The computerized registration and the printed class schedule constitute official evidence of registration.

ACADEMIC LOAD

The academic load for a program consists of a group of subjects with an approximate value of 12 credits per semester, but that may vary by determination of the Dean for Academic Affairs. Students may carry a lighter or a heavier academic load, but they may never exceed 21 credits per semester.

Academic load during the summer session is between 6 and 7 credits. Candidates for graduation in the summer session, and students with honors registration are exempted from this rule. These students may be enrolled in a maximum of 10 credits, with the recommendation of the Director of the academic program, and the written authorization of the Dean for Academic Affairs. Students may not take both parts of a sequential course during the summer session.

CLASSIFICATION OF STUDENTS

UPR students are grouped in the following categories:

1. **Full time students** are those taking a regular course schedule equivalent to twelve (12) credits per semester and who are pursuing a degree or certificate from the University of Puerto Rico
2. **Part-time students** are those that follow an academic program of fewer than twelve credits per semester, but that nevertheless are candidates toward a degree, diploma or certificate from this institution.

3. **Visiting students (auditors)** are those authorized by the Dean for Academic Affairs to take a course without receiving credit for the work performed. Students can audit a maximum of two courses and must pay a \$33 registration fee for each course, plus a \$67 construction fee. Laboratories carry a surcharge of \$33.
4. **Transient or special-permit** students are those that are registered in another UPR unit, but with the authorization of the Dean for Academic Affairs take several courses at U PRA. This special-permit must be renewed each semester.
5. **Professional development students** are those who do not follow a course of studies leading to a degree. These students may take up to six (6) credits per semester, for a maximum of three semesters. The Dean for Academic Affairs may authorize a larger academic load.

COURSE CODES

Each course offered at UPRA is coded in an alphanumeric code that consists of four letters that identify the subject matter and four digits that identify the level of the course.

ALPHABETIC CODE	NUMERICAL CODE
(XXXX)	Level (XXXX) sequence
Initials of the course	Course itself

Numerical part of the code

- | | |
|---|--|
| 0 | Remedial-The material is considered pre-college level even if it is offered at the university. |
| 1 | Associate, first level |
| 2 | Associate, second level |
| 3 | Undergraduate, second level. First two years of the bachelor's and transfer programs |
| 4 | Undergraduate second level. Next two or three years of the bachelor's programs. |
| 5 | Courses that may be credited towards a Bachelor's or a Master's degree with authorization of the Department Chair. |
| 6 | General graduate courses |
| 7 | Doctorate, first level professional |
| 8 | Specialized graduate courses |
| 9 | Post-doctoral (Also used to assign temporary numbers to courses). This is precisely its use in this catalog.) |

The second and third digits of the numerical series identify the sequence of the course; the 00 to 99 digits have been reserved for courses with a varying number of credits.

The fourth digit identifies the course sequence. The sequence indicates that a second semester of the course is offered. The sequence does not establish pre-requisites. Pre-requisites, if there are any, are informed by the UPR unit in its catalog, course schedules, and other official documentation.

CLASS ATTENDANCE

Attendance is mandatory. Professors have the duty of noting absences of their students and reporting these to the Registrar's Office along with the semester's grades, and also on the Class attendance lists. Frequent absences may affect the grade and the student's eligibility for financial aid.

ACADEMIC INSTRUCTIONAL UNIT

One (1) college credit is equivalent to one (1) hour of class work (lecture or discussion); from two (2) to four (4) hours of laboratory work, and two (2) hours of language practice, seminars or work of a similar nature, each week. Class periods are fifty minutes, and semesters have a minimum length of fifteen (15) weeks, excluding the period for final examinations.

WITHDRAWALS

Partial Withdrawals

Students may withdraw from one or several courses and still continue as bona fide registered students by following this procedure:

1. Request the withdrawal slips at the Registrar's Office.
2. Complete the information requested.
3. Have the forms signed by the appropriate officers.
4. Submit the completed form to the Registrar's Office on or before the date assigned on the Academic Calendar. Students must show their course schedule and ID card at the time.
5. A **W** will appear on their record instead of a grade.

Full Withdrawal

Students may withdraw completely from the University at any time during the semester up to the last day of classes. A 'W' will appear instead of a grade for each course in which they are enrolled, and students will be formally separated from the University of Puerto Rico.

The procedure for a total withdrawal is the following:

1. Request the withdrawal forms at the Registrar's Office
2. Complete the information required in the document.
3. Get the signatures required.
4. Process the withdrawal at the Registrar's Office. Students must show course schedule and ID card.

REVIEW PERIOD

A period of one or two working days will be scheduled for review at the end of the academic semester and before the final examination period begins. During this review period students shall be free of any academic duty so that they can study for their final examinations. Professors may not give partial examinations and they must be available to their students. This norm is also valid for the summer session.

FINAL EXAMINATIONS

Every course will close with a final evaluation of the student's work by a method to be determined by the department's faculty. The dates for the final examination will be announced by the Registrar's Office. A preliminary schedule will be available to students to detect conflicts in scheduling. The Final Examinations Schedule, once approved, cannot be modified, unless by authorization of the Dean for Academic Affairs.

Absence from Final Examinations

A student absent from a final examination duly announced by the Registrar's Office will receive a grade of 0 or F in the examination. Students may justify their absence within a period of three working days from the original exam date. If the professor or the department chair determines that the student's absence was justified, the student will receive an Incomplete grade (See the section on removing 'Incompletes').

Absence from Partial Examinations

Individual professor will determine the norms for dealing with absences from examinations in their classes.

GRADING SYSTEM

The grade shows the degree of the student's academic performance in each of course. To make it possible to compute a Grade Point Average, an indicator of the student's general performance, each grade is assigned a numerical value:

A	Outstanding	4.0 per credit
B	Good	3.0 per credit
C	Satisfactory	2.0 per credit
D	Deficient	1.0 per credit
F	Fail	0.0 per credit
P	Pass, not computable for the GPA	
W	Withdrawal	
I + Grade	Provisional Grade or Incomplete	

Provisional Grades or Incompletes

Students who do not complete one or more of the evaluation requirements for a course as established in the syllabus may receive an Incomplete (I) or provisional grade. The provisional grade will be determined on the basis of the work completed, plus a grade of (0) zero for the work not completed. Instructors may grant Incomplete grades according to the students' merits.

Criteria for Removing an Incomplete

1. The following warning must appear in the students' grade reports: Incompletes must be removed within the 60 days following the first day of classes of the next semester as established in the Academic Calendar.
2. If the professor does not notify a change in the provisional grade before or on the deadline set in the Academic Calendar, the provisional grade will become the final grade. The *Incomplete* grade will count for the computation of the students' *General Index*.

ACADEMIC INDEXES

The academic index is the numerical representation of the students' academic performance in all courses taken, including failed courses. (When a course is repeated, only the highest grade obtained will be taken into account.) Those courses from which students have officially withdrawn (W) will not count towards their academic indexes.

1. **General index** is computed taking into account the grades received in all courses taken.
2. **Program index** is computed taking into account all the grades obtained in the required courses of the curriculum of the program from which students request graduation.
3. **Specialization index** is computed taking into account only the grades obtained in the specialized courses for the degree requested.
4. **Retention index** is the minimum academic index the student may have at the end of

the academic year. It is computed taking into account the number of credits the student has carried, as established in the retention table. (Accumulated credits approved include those courses with an F.)

5. **Graduation index.** To graduate, students must have at least a 2.00 specialization index and a 2.00 program index.

REPEATING COURSES

Courses Passed with a C

In compliance with UPR Board of Trustees Certification Num. 017-1998-99, the following procedure is established for repeating courses passed with a grade of C.

1. During academic counseling, advisors will recommend the repetition of courses passes with C based on their knowledge of their advisees' academic aspirations.* Students will fill out the form requesting repetition of a course passed with a grade of C, which will be available in all academic departments. Students will submit their petition to their own academic department.
2. The request must be authorized by the Chair of the students' academic department based on an analysis of the students' academic circumstances. The criteria for authorizing these requests include:
 - a. improving students' academic indexes to enhance their opportunity for admission at a graduate school
 - b. increasing students' knowledge of a particular subject, as in cases of courses that were taken a considerable time ago.
 - c. increasing students' opportunities for transferring or reclassification.
 - d. enhancing students' opportunities for financial aid or admission to special program such as the Honor's Program.
 - e. improving their opportunity of obtaining degrees, licenses or diplomas which are based on competitive indexes.
 - f. other circumstances deemed justified by the academic advisor in agreement with the Department Chair.
3. The academic department will submit the requests to the Office of the Dean for Academic Affairs who will authorize them and forward them to the Office of the Registrar for the appropriate action.
4. At the end of the academic year, the chair of the department where such requests originated will submit a report of these exceptional cases to the Chancellor and to the

* If the request is not submitted before the registration process, students will be awarded two grades for the same course in their transcript. Both grades will be counted towards their general and concentration indexes. The request may not be processed retroactively after students have repeated the course.

Dean for Academic Affairs explaining the purpose of these requests.

Department Chairs may authorize students to repeat a course passed with a C, subject to their written request and in exceptional circumstances, after analyzing the students' academic circumstances (UPR Board of Trustees Certification Num. 017-1998-99). The Registrar and the Dean for Academic Affairs will be notified of this authorization.

Courses with Grades of D or F

1. Students may repeat a course they have failed without any previous authorization.
2. When students repeat a course in which they originally obtained a grade of C or D, the second grade obtained will be used to compute their academic index. However, the original grade will remain in their transcript.

Grade Reports

At the end of each semester, the Registrar's Office will issue students a written report of the grades obtained in the courses carried that semester. Students that consider that a mistake has been made in their report shall notify the instructor and the Registrar's Office before the first week of the following semester. Students who carry outstanding debts with the university will not receive a grade report until such debts are cleared.

PROCEDURE for CHANGING FINAL GRADES

(UPRA Senate Certification Num. 2006-07-14)

The procedure to change a final grade obtained by a student in a course responds to two situations:

- (A) The student is not satisfied with the grade obtained.
- (B) The professor realizes a mistake after administering the grades.

A. In situation A – the student is not satisfied with the grade obtained.

1. The student will notify the professor about his/her dissatisfaction.
2. The professor will request a letter where the student states his/her dissatisfaction with the grade.
3. The professor will follow the next steps, once the mistake has been accepted:
 - a. Fill out the application to the Academic Progress Committee through the chair of the Academic Department.
 - b. Send the application to the Academic Progress Committee through the chair of the Academic Department.
 - c. The application must include the following documents:
 - i. An explanation letter from the professor to the Academic Progress Committee. The letter must specify the following:

- Name and last name
 - Student number
 - Course and section
 - Semester and academic year
- ii. Clear and legible copy of the rollbook with the pertinent section and case identification. If an electronic rollbook was submitted, the professor may submit a copy of the CD or a signed copy of the rollbook.
 - iii. If an electronic rollbook was submitted, the professor will certify the gradesheet where the mistake was made and the document with the corrected grade. Both documents will be submitted to the Academic Progress Committee.
- d. The professor will submit the case(s) before the ninth working week of the following semester after the course was offered. The date to complete these changes is programmed in the academic calendar.
 - e. The Academic Progress Committee will evaluate any case where these steps have not been followed and will determine whether to continue the case or not.
 - f. The Dean for Academic Affairs will notify the final decision of the case to the Registrar which will make the corresponding changes to the student's academic record.
 - g. The Registrar's Office will make the official announcement to the student of the change in grade(s).
 - h. If the student or the professor is not satisfied with the decision they will have 15 working days after the official notification to appeal before the Dean for Academic Affairs.
 - i. The Academic Progress Committee will submit the procedure for appeals, which is part of the Progress Committee Bylaws.
4. If the professor does not accept the mistake, the student will submit an application to the Dean for Academic Affairs for the revision of his/her final grade.
 - a. The student will submit a letter explaining his/her dissatisfaction with the obtained final grade.
 - b. The student will have until the ninth working week of the following semester after taking the course to submit the petition.
 - c. The Dean for Academic Affairs will submit the petition to the Academic Progress Committee.
 - d. The Academic Progress Committee will analyze the petition; conduct interviews and pertinent investigation to determine the course action.
 - e. The Academic Progress Committee requires the following documents:
 - i. An explanation letter from the professor to the Academic Progress Committee. The letter must specify the following:

- Name and last name
 - Student number
 - Course and section
 - Semester and academic year
- ii. Clear and legible copy of the rollbook with the pertinent section and case identification. If an electronic rollbook was submitted, the professor may submit a copy of the CD or a signed copy of the rollbook.
 - iii. Evidence of the instruments and evaluation criteria. NOTE: Oral exams must include the evaluation criteria used during the exams.
 - iv. Explanation of the method used to calculate the final grade.
- f. The Associate Dean for Academic Affairs, member of the Academic Progress Committee, will notify the decision to both, the professor and the student.
 - g. If the professor or the student is not satisfied with the decision, they will have 15 working days to appeal the decision to the Chancellor.
 - h. The Chancellor will listen to both arguments (the Academic Progress Committee and the professor) and will determine the final action.
5. Any final decision which requires a change in grades to the student's record will be submitted by the Dean for Academic Affairs to the Registrar's Office for its corresponding action.

B. In situation II: The professor realizes a mistake after administering the grade.

1. The professor will fill out the application for changing grades.
 - a. Send the application to the Academic Progress Committee through the chair of the Academic Department.
 - b. The professor will send a copy to the student.
2. The application will include the following documents:
 - a. An explanation letter from the professor to the Academic Progress Committee. The document must specify the following:
 - Name and last name
 - Student number
 - Course and section
 - Semester and academic year
 - b. Clear and legible copy of the rollbook with the pertinent course section and a case identification.
 - c. If an electronic rollbook is used, the professor will certify the gradesheet where the mistake was made and a gradesheet with the correction. Both documents will be submitted to the Academic Progress Committee.
 - d. Evidence of the instruments and the evaluation criteria. NOTE: Oral exams must include the criteria used during the evaluation.
 - e. Explanation and evidence of the method to calculate the final grade.

- f. If the professor or the student is not satisfied with the decision, they have 15 days to appeal the decision to the Dean for Academic Affairs.
3. The Dean for Academic Affairs will notify the final decision to the Registrar which will make the corresponding changes to the student's academic record.
4. The Registrar's Office will make the official announcement of the changes in grades to the student.
5. The Academic Progress Committee will evaluate any case which does not follow this procedure and will determine whether to proceed with the case or not.

RULES FOR PLACING A STUDENT IN PROBATIONARY STATUS OR IN ACADEMIC SUSPENSION (UPRA Senate Certification No. 2010-2011-31)

I. Criteria to establish probationary status or academic suspension

At the end of each academic year, students' cumulative academic indexes are compared to the corresponding retention index. Students whose cumulative academic index are lower than the retention index will be notified by the Registrar's Office that they have been put on probation, or suspended, according to the circumstances. The following table shows the retention and probationary index as established in UPRA Senate Certification No. 2010-2011-31:

RETENTION INDEX TABLE				
Credits Accumulated	Minimum Academic Retention Index	Margin for Probationary Status with Restrictions		Suspension Margin for with Possible Reconsideration
1-32	1.75	.20	1.74-1.55	1.54-1.45
33-64	1.95	.15	1.94-1.80	1.79-1.70
65 or more	2.00	.10	1.99-1.90	1.89-1.80

II. Probationary Status with Restriction (flag)

Probationary status is established by taking into consideration the minimum grade point average a student is required to pass with the amount of credits accumulated at the end of every academic year. With the information obtained, the Retention Index is defined and used to determine a probationary status, or, in its case, an academic suspension.

If the cumulative index (as established by the grade point average) is less than the retention index established, but does not exceed the quantity as established in the Minimum Academic Retention Index from the Retention Index Table, the student will be placed in probationary status with restrictions (flag). The student will be duly notified of the fact by the Registrar's Office.

A. Procedure to be followed for students in Probationary Status and Flag Removal

1. The Registrar's Office will refer those students to the Counseling and Psychological Services Department by the Dean for Student Affairs, for counseling related to the implications of the probationary status. The process must be made before the registration period begins. The student classified in a probationary status will be assigned date during the registration to ease the selection of the repeated courses. NOTE: The student's access to the registration process will only occur after steps 2, 3 and 4 are completed.
2. The Dean for Academic Affairs, in coordination with the personnel of the Counseling and Psychological Services Department, will refer those students to attend a general group orientation about the implications of the probationary status and the process needed to come out from this status.
3. Once the group orientation is finished, the professional counselor will schedule a date in which the student will be individually evaluated in order to establish a course of action according to the student's status. The counselor will also reschedule the student's academic program according to the academic evaluation conducted. The registration recommendation will be made through an electronic or printed referral.
4. The professional counselor will hand out to the student a printed referral in which the personnel of the Registrar's Office is notified that the flag should be removed. A second referral will be submitted with the recommendations of the academic program. The student will hand in these recommendations to the chair of his/her academic department.
5. The chair of the department, will give priority, during registration, to the students in probationary status once the referral made by the professional counselor is received and will enter the course for the student's class schedule into the system.
6. Once the registration process is completed, the student must schedule a date with the professional counselor to establish a course of action and receive the help needed.

B. Class schedules of student on probation will adjust to the following:

1. Students will repeat as many **D** or **F** courses as needed to reach the necessary minimum retention index.
2. Students may enroll on a maximum 15 credits per semester, but may take only one course during the summer session.
3. Students must reach the minimum retention index established in the Retention Index Table by the end of the academic year.
4. Students will not withdraw from a course or withdraw totally without the written authorization of his professional counselor.
5. Students, who partially withdraw under special circumstances, could ask for readmission. If the student is readmitted, he/she will be placed under probationary status.

6. The student will attend, at least, a monthly visit to his/her professional counselor to check on their academic progress. If the student's professional counselor deems it appropriate the student may be asked to attend more than once a month. The probationary period lasts for one academic year. It is also required that students must attend any workshop designed by the professional counselor for students in the same condition.
7. The student who does not achieve the minimum retention index will be suspended for a minimum of one year according to the regulations in part III of this certification.

III. Students under Academic Suspension with the Possibility of Reconsideration.

1. A student placed under academic suspension and whose retention index does not exceed 0.10 below the margin for the probationary status with restrictions as established on the Index Retention Table (see Suspension Margin for with Possible Reconsideration) and considers he/she has a justification for his/her deficient academic achievement, may fill out the application to the Academic Achievement Committee in order to consider a probationary status. The student must initiate the process to request a probationary status with an interview with a professional counselor.
2. After the interview with a professional counselor, the student will submit a letter as a formal request for the probationary status. The professional counselor will submit the document with evidence to support the case before the Academic Achievement Committee. The Academic Achievement Committee will consider the merits of the request. The Committee may interview the student and will make the proper recommendation to the Dean for Academic Affairs for a final approval. The Registrar's Office will duly notify this decision to the student.

IV. Rules to define Academic Suspensions

A student who has only studied for one semester and has not achieved the minimum retention index will become suspended due to academic deficiencies at the end of the academic year. When the cumulative average of a student is less than the retention index, by a margin which exceeds 0.20 (1-32 cumulative credits) or 0.15 (33-64 cumulative credits) or 0.10 (65 or more cumulative credits) as established on the Retention Index Table, the student will be placed on academic suspension for academic deficiency at the end of the current academic year.

A. First Suspension

1. The Registrar's Office will notify the student of the suspension with the grade distribution.
2. The student will not be able to enroll in the University of Puerto Rico for one academic year, before being eligible for readmission under probationary status.
3. During an academic suspension students will not receive credit towards courses taken

in other university institutions. It includes courses taken in other campuses of the University of Puerto Rico.

- a. The student may request a readmission under probationary status at the Registrar's Office.
 - b. The Registrar's Office will send the request to the proper academic department.
 - c. The Registrar's Office will refer the student to the Counseling and Psychological Services Department to evaluate and consult the implications related to a probationary status.
4. The student will be accepted by the department and the chair will schedule an academic program in accordance to the recommendations of the professional counselor.
 5. The chairs of the academic departments will create sufficient spaces in their academic programming to meet the needs of those students.
 6. Once the student is readmitted under probationary status the proper procedure in sections II-A and II-B will be followed.
 7. The student is responsible to attend any workshop his/her professional counselor may program according to the student's needs or any other professional service.

B. Second Suspension

1. Students, who fail to achieve the minimum index for retention for a second time, will be suspended for academic deficiencies and must remain two (2) years out of the University of Puerto Rico.
2. The Registrar's Office will notify these students of their suspension due to academic deficiencies in their grade report. The office will also send an explanation about the specifics of a second suspension.
3. After two years of academic suspension, students may request readmission on a probationary status.
4. The Registrar's Office will send the application to the corresponding department. The department does not have to accept the application.
5. Students may appeal their status before the Academic Achievement Committee. This committee will analyze the case. It may approve a second probationary period depending on the circumstances.
6. If the student is accepted, every rule as specified by the Rules for Placing a Student in Probationary Status or in Academic Suspension (UPRA Senate Certification No. 2010-2011-31) in section II for the cases of probationary status with restrictions (flag), will apply.

C. Third Suspension

1. The students who fail to achieve the minimum retention index for the third time will be suspended for academic deficiencies and precluded from studying at the University of Puerto Rico for four (4) years.

2. After four years of academic suspension, the student may re-submit an application for readmission on probationary status to the Registrar's Office.
3. The Registrar will send such applications to the Academic Progress Committee.
4. The Academic Progress Committee will consider the case and may recommend a re-admission with a third probationary status. Every disposition as specified by the Rules for Placing a Student in Probationary Status or in Academic Suspension (UPRA Senate Certification No. 2010-2011-31) in section II of cases of probationary status with restrictions (flag) will apply to the student.
5. After a third suspension, students who again fail to reach the retention index required according to the Retention Index Table will be permanently precluded from studying at the University of Puerto Rico at Arecibo.

V. Definition of Terms Used in this Section

1. **Academic year:** It is defined, for the purpose of these regulations, as the period from August to May, plus the corresponding Summer Session.
2. **Retention index:** It is the necessary minimum academic average for continuing studies at the University of Puerto Rico at Arecibo. It is applied according to the table above.
3. **Student in Probationary Status:** A student who has been properly authorized to register in the Institution under certain conditions and must comply by reaching an average below the Retention Index established by the Institution, ranging between a 0.10 and 0.20 of the required average according to the number of credits taken. It also includes those students who completed a reconsideration process by the Academic Achievement Committee of the Deanship for Academic Affairs.
4. **Students in Academic Suspension:** A student who has an average below the 0.20 Retention Index established by the Institution to be able to continue studies in the University. More than one academic suspension carries a different penalty, which may lead the student to stay away from the institution between one (1) to four (4) years or even to be permanently expelled from the University.

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT OF 1974 (FERPA)

Better known as the Buckley Amendment, FERPA provides ensures the confidentiality of student academic information. Students shall have the right to keep the university from divulging their confidential academic records by submitting a written request to that effect. Students may authorize access to other individuals only through a signed written consent form. Failure to authorize disclosure will limit the following:

1. information requests from personnel recruiters from public or private agencies
2. scholarship offers and other forms of financial aid
3. enrollment in another university, etc.

In the following cases, information may be disclosed without the student's consent:

1. requests from authorized representatives of the Comptroller of Puerto Rico or the Secretary of Justice.
2. requests for information or copies of student transcripts from parents who show students to be their dependents as defined by the Income Tax Law.

Written consent by students is necessary to disclose information when requested by the following:

- banking institutions
- Veteran's Administration
- ROTC
- other agencies that have provided financial aid or student loans
- emergency health situations
- educational institutions whose directories include students who have been inactive during the last semester

Written authorizations signed by students are valid for a year, except when students submit a written request to nullify them.

VETERANS

Benefits

UPR students who are veterans (as defined by the Veteran's Administration) of the United States Armed Forces and who receive benefits from the Montgomery G.I. Bill are required to meet the academic requirements specified in the bill. The Academic Progress Policy of 150% for Title IV does not apply to these students as long as they benefit from the G.I. Bill

NORMS AND PROCEDURES FOR READMISSION, RECLASSIFICATION, SPECIAL PERMITS, TRANSFERS AND ARTICULATED TRANSFERS IN THE UNIVERSITY OF PUERTO RICO AT ARECIBO (UPRA Senate Certification Number 2007-08-24)

The procedure for the consideration of the applications for Readmission, Reclassification, Special Permits, Transfers, and Articulated Transfers as offered by the University of Puerto Rico at Arecibo is in charge of every academic department's Committee for Readmission, Reclassification, Special Permits, Transfers, and Articulated Transfers. This committee will consult and advice the chair of the deparment of the process.

I. Readmission

A. Definition:

The process by which an undergraduate student of the University of Puerto Rico at Arecibo, having interrupted his/her studies for one or more semesters or obtained an academic degree asks for readmission to the University.

Including:

- A student who obtained a bachelor's degree from the University of Puerto Rico system and presents an interest in studying another major.
- A student who obtained an associate degree from the University of Puerto Rico at Arecibo.
- A student from the University of Puerto Rico who completed an academic degree and requests admission to a professional improvement program.

Excludes:

- Undergraduate students from other units of the system.
- Students with a special permit.
- Students who obtained an associate degree from another unit, and must request a transfer or readmission, according to the case, from their unit of origin.

B. Minimum Requisites

The undergraduate student who voluntarily interrupted studies must:

- a. Have the required grade point average for the selected program during the year in which the student was admitted and comply with the general retention index at the moment of requesting admission.
- b. If the student does not possess the requisites according to subsection a, he/she must have a minimum of 24 credits approved with the general average index as established by the academic department.

C. Suspensions:

1. Certification 2010-2011-31 by the Academic Senate from the University of Puerto Rico at Arecibo presented the rules about readmissions for students who were suspended due to academic deficiencies.
2. A student suspended due to disciplinary actions will be ruled under the nature and disposition of the selected course of action. The dispositions of the Discipline Committee will be sent to the Registrar's Office which will put them into effect. After making a decision on the penalties, and if these are not of a permanent nature, the student may request admittance to the selected academic program and will follow the procedure established in subsection one (1).

D. Procedure:

1. The student will fill the application and submit it to the Registrar's Office on the date specified in the academic calendar with a payment receipt from the Bursar's Office. Late applications will have an additional charge.
2. An officer from the Registrar's Office will include a credit transcript to the application, will organize them by department and major and will prepare a list of each group. These applications will be sent to the chair of the corresponding academic departments as requested. The same process applies to late applications.
3. The Committee for Readmissions, Reclassifications, Transfers and Articulated Transfers from every department will evaluate each case and will write the recommendations in an endorsement sheet. In the case of dismissed evaluations, the committee will state the reasons for such cases. The chair of the department will sign the applications and will send them along with the endorsement sheet signed by every member of the committee to the Dean for Academic Affairs who will keep a copy of the lists and the endorsement sheets.
4. The Dean for Academic Affairs will make the final decision. This decision will be written in the corresponding document will sign and send them back to the Registrar's Office.
5. The assigned officer from the Registrar's Office will process every application and will notify the student about the decision. In the case of an acceptance, the student will be informed about the steps to follow and the documents that must be filled and included. If the case was refused the student will be notified about the procedure for reconsideration and the date on which the refusal was made.

E. Reconsideration:

1. Definition:

Process by which a student submits a request for the reevaluation of the case, if the student believes the request was not properly considered.

2. Procedure:

- a. The student presents the case to the chair of the corresponding academic department.
- b. The chair of the department will analyze the reconsiderations and will consider:
 1. In first instance, those cases which were refused for lack of enrollment space in the program.
 2. Those who fulfill the requisites but whose documents were not submitted on time.
 3. Applications for professional improvement.
- c. The chair of the department will answer the reconsideration in the student's copy of the readmission document.

- d. The chair of the department will send the document to the Dean for Academic Affairs for a final decision.
- e. The following procedure is the same as when a regular consideration is requested.

II. Reclassification

A. Definition

Process by which a student changes from one academic program to another in the University of Puerto Rico at Arecibo.

B. Requisites

1. A newly admitted student may request a reclassification during the first semester of that student's first year if at the moment of admissions the student had the grade point average required by the department or academic program to which the student is requesting a reclassification.
2. A student requesting reclassification during the second semester of that student's first year must comply with the following requisites:
 - a. Have the Grade Point Average required by the selected academic program.
 - b. Have a minimum of 12 approved credits.
 - c. Comply with other requisites established by the department or selected academic program.
3. In every other case, a student who wishes to be reclassified must comply with the following requisites:
 - a. Have 24 or more approved credits.
 - b. Comply with the requisites established by the selected program.
4. The requisites established by the different academic departments or programs must be notified to the Registrar's Office. Any changes made must be notified to this office during the month of May.

C. Procedure

1. The student will fill out and submit the reclassification application at the Bursar's Office during the dates established in the academic calendar. These documents should also include a payment receipt from the Bursar's Office. Late applications will have an extra charge fee, which are non refundable.
2. The officer from the Registrar's Office will send the applications with the requisites to the corresponding academic departments.
3. The Readmission, Reclassification, Transfers, and Articulated Transfers Committee will evaluate and sign the applications, which are then sent to the Dean for Academic Affairs with their recommendations.
4. If the case is denied, the reasons for this decision must be explained.

5. The Dean for Academic Affairs will make the final decision of the case and will write it on the corresponding document. The document will be signed and sent to the Registrar's Office.
6. The officer from the Registrar's Office will revise the documents and will notify the student about the chosen course of action on the case. If the case is accepted, the student will be notified about the process that follows and the documents needed. If the case is denied, the student is notified about the existing reconsideration procedures.
7. The student requesting a reclassification will not be able to complete the pre-registration process until a decision about the case is received. The student whose request was accepted will be able to receive academic counseling and complete the pre-registration process in the academic department on which the student was accepted. If the case was denied the student should receive their academic counseling and complete the pre-registration process in their current academic department.

D. Reconsideration

1. Definition:

Process by which a student requests a reevaluation of their case if the student believes their request was not properly considered.

1. Procedure

- a. The student will present the case to the chair of the selected academic department.
- b. The chair will analyze the reconsiderations and will consider:
 1. First of all, the case was denied because the program's limit was met.
 2. Those who fulfill the requisites but did not submit the documents on time.
 3. Requests for professional improvement.
- c. The chair of the department will send a reply on the student's request copy.
- d. The chair of the department will send the document to the Dean for Academic Affairs.
- e. The process will continue as a regular request.

III. Transfers

A. Definition

Process by which a student from an accredited college institution and has never studied at the University of Puerto Rico system applies for studies in the UPR system.

B. Requisites and General Norms

The student must comply with the following requisites:

- a. Have a minimum of 24 credits at the moment of requesting the entrance application.
- b. Have the department or program's required academic index.
- c. Student record evaluation criteria:
 1. Remedial or pre-basic courses will not be taken into consideration to validate or calculate the total credits obtained or to calculate the general average.
 2. Courses with a passing D grade will be considered to calculate the general average and the number of approved credits, but will not be considered for credit validation.
 3. Courses with a passing F grade will be considered to calculate the general average.
 4. The student is responsible to find out any other departmental or program's requisites.
 5. Send an official credit transcript from every college institution where the applicant has studied. Official credit transcripts must be received before 15 working days after the due date established in the academic calendar. Complete student records will be evaluated.
- d. Have the clearance certificate from every college institution where the applicant has studied. The applicant must be free from any disciplinary sanction in order to receive a transfer permit.
- e. Requests made to the Articulated Transfer for a Bachelor's degree in Nursing must have an associate degree in Nursing.
- f. Students with less than 24 approved credits must also comply with the following:
 - ✓ Results from the college entrance exam must be current.
 - ✓ Have the required general grade average established by the selected program for the academic year.

C. Procedure

1. Fill out the request application and submit it at the Admissions Office on the established date of the academic calendar. The payment receipt from the Bursar's Office must be included. Late applications will have an extra fee, which are non refundable.
2. Send an official credit transcript from every college institution where the applicant has studied. Official credit transcripts must be received before 15 working days after the due date established in the academic calendar. Only complete student records will be evaluated

3. The Admissions office will send the transfer applications to the corresponding academic departments and the complete student's records after their evaluation.
4. The departmental Readmissions, Reclassifications, Transfers and Articulated transfers Committee will evaluate each student record and send the recommendation of admission or denial letter. The chair of the department sends the documents to the Dean for Academic Affairs for a final decision.
5. The Dean for Academic Affairs will send a decision to the Admissions Office.
6. The Admissions Office sends a notification to the student about the Institution's decision.
7. If the student is admitted, the Institution sends him/her a letter with further steps to complete in order to begin studies at the University of Puerto Rico at Arecibo.

D. Reconsideration

1. Definition:

Process by which a student requests a petition for the reevaluation of a case if the student understands the case was not properly considered.

2. Procedure

- a. The student presents the case to the chair of the selected department.
- b. The chair of the department analyzes the request and considers:
 - ✓ The cases that were denied due to space limit are seen first.
 - ✓ Those who comply with the requisites but the documents were not received on time.
 - ✓ Requests for professional improvement.
- c. The chair of the department replies on the student's readmission copy.
- d. The chair of the department sends the document to the Dean for Academic Affairs for the final decision.
- e. The process that follows is the same as a regular request.

IV. Special Permits

A. Definition

The authority that grants an active student in any unit of the University of Puerto Rico permission to study in other units or accredited college institutions with the purpose of transferring the student back to their unit of origin.

B. Justification for Special Permits

The objectives for the procedure of special permits are the following:

1. Expand the student's educational alternatives by allowing the student to take courses in other units or educational institutions due to his/her own initiative or as an exchange student.
2. Offer the student the opportunity to become exposed to different educational cultures.
3. Take care of personal matters that require the student to relocate to a different unit or accredited institution on a temporary basis.
4. Ease the student's academic progress, allowing the student to take courses which are not offered in their unit of origin.

C. Eligibility

1. Every student from the University of Puerto Rico system will be able to request a special permit in any of the system's units up to a maximum of 50% of their program's credits.
2. A special permit is granted only to students with a 2.0 or higher GPA to study in another unit or accredited institution during the authorized academic session.
3. The student requesting the special permit must have studied for at least one semester prior to receiving the authorization.

D. Requisites

1. The student requesting a special permit may take up to 50% of the credits towards the academic degree.
2. With a special permit the student may only take the courses required for his/her academic program.
3. The student may take up to 6 credits in elective courses.
4. The student may only enroll in previously authorized courses. The unit of origin may indicate in the document alternative courses which the student may take only if the number of maximum authorized credits is not exceeded. If the student wishes to take additional courses an amendment must be made in their unit of origin by filling out a new request application.
5. Students from the University of Puerto Rico at Arecibo may request special permits for an accredited private college institution. A maximum of 16 credits towards their degree are authorized.
6. Concurrent studies at more than one academic institution are authorized only if the number of credits combined within and outside of their unit of origin, 21 credits during the spring or fall semester and 7 credits during the summer session, is within the regulations of the unit of origin.
7. Once the special permit is approved and the student does not reach a satisfactory academic progress, the special permit is cancelled.
8. Under exceptional cases, the Dean for Academic Affairs may authorize special permits to students who do not fully meet the previous conditions.

9. Students who wish to change their academic program or unit of instruction must apply for a reclassification or transfer instead of a special permit.

E. Procedure

1. **Special permit requests from UPR-Arecibo to other other institutions**
 - a. The student fills out and submits the request to the Registrar's Office on the dates established in the Academic Calenda along with a payment receipt from the Bursar's Office. Late applications have a late fee. These fees are non refundable.
 - b. The assigned officer from the Registrar's Office will hand out the applications. The officer will write on the document the number of credits previously taken by the student by a special permit.
 - c. The chair of the department from the student's selected program evaluates the application and will make recommendations to the Dean for Academic Affairs.
 - d. The chair of the department offering the requested course authorizes the application for its validation or equivalency.
 - e. The Registrar's Office sends a copy and the original application document with the student's file record to the requested unit or college institution.
 - f. The student who wishes to take additional courses to those authorized on the special permit, must fill out a new application during the registration process.
 - g. Every authorized course taken through a special permit will be transferred to the academic student's record and will include the obtained grade. Courses which were taken out of the University of Puerto Rico's system will receive a P (Pass) in their student record.
2. **Special Permit requests from accredited private institutions to the UPR-Arecibo.**
 - a. Students coming from accredited private institutions will be able to request a special permit and enroll in 2 academic sessions for a maximum of 2 courses per session. The acceptance will depend on the program's established quota for those courses.
 - b. The Registrar's Office receives the requests and sends them to the Dean for Academic Affairs for its evaluation and final decision. These are then sent to the Registrar's Office which will notify the student of this fact.

V. Transfers

A. Definition

Process by which an undergraduate student from the University of Puerto Rico requests studies in another unit of the system.

B. Student's minimum requirements

1. Comply with the minimum requirements established by the requested academic department or unit of instruction.
2. Only those applications which were received on time will be able to include their first or second alternative for an academic program.

C. Departmental Minimum Requirements

1. Every academic program establishes the minimum requirements which must be achieved by the student in order to be admitted to the program. These requirements are sent to the Registrar's Office and the Deanship for Academic Affairs.

D. Procedure

1. Transfers from the University of Puerto Rico at Arecibo to the UPR System

- a. The student fills out the request application and takes it to the academic advisor from the selected academic department to evaluate and determine if the student meets the established minimum requirements.
- b. The application is taken to the Registrar's Office on the dates established in the academic calendar along with a payment receipt from the Bursar's Office. Late applications will have a late fee. These fees are non refundable.
- c. The officer from the Registrar's Office creates an electronic transfer record in the Student Information System (SIS) and also a printed record.
- d. Both records are sent to the unit of instruction requested by the student.

2. Arecibo Transfers from the UPR System to the University of Puerto Rico at Arecibo

- a. The Registrar's Office receives the electronic and printed records from other UPR units and sends them to the corresponding academic departments.
- b. The chair of the department and the Readmissions, Reclassifications, Transfers and Articulated Transfers Committee evaluates and answers the requests which are then sent to the Deanship for Academic Affairs for its final decision.
- c. The Dean for Academic Affairs evaluates and answers the requests which are then sent to the Registrar's Office.
- d. The Registrar's Office is responsible of notifying the student of the decision.
- e. If the request is denied and has a second study alternative are sent to the corresponding department or unit. Requests which are sent without a second study alternative will be able for reconsideration.
- f. Only those application requests received on time will be able to include a first and second study alternatives.

E. Reconsideration

1. Definition

Reconsideration defines the process by which a student sends a request for a case reevaluation if its understood the case was not properly considered.

2. Procedure

- a. The student presents the case to the chair of the selected academic program.
- b. The chair of the department analyzes the reconsiderations taking into consideration:
 1. First of all, those cases which were denied due to limited program quota.
 2. Those who comply with the requirements but did not send the documents on time.
 3. Professional improvement requests.
- c. The chair of the department replies the consideration in the student's readmission copy document.
- d. The chair of the department sends the document to the Deanship for Academic Affairs for its final decision.
- e. The application is then processed as a regular request.

VI. Readmissions and Transfers

A. Definition

Process by which an undergraduate student who is not currently enrolled at the UPR-Arecibo applies for a request to study in another unit of the system.

B. Student Minimum Requirements

1. Comply with the minimum requirements established by the requested department or unit of instruction.

C. Department's minimum requirements

1. Every academic program establishes the minimum requirements in order to be admitted. These are sent to the Registrar's Office and the Deanship for Academic Affairs.

D. Procedure

1. Fill out the transfer request in the unit of instruction except the signature from the academic advisor.
2. Pay the corresponding fee.
3. The application is sent to the Registrar's Office on the dates established in the academic calendar along with the payment receipt from the Bursar's Office. Late applications will have a late fee. Fees are non refundable.
4. The officer from the Registrar's Office creates the transfer record in the electronic Student Information System (SIS) as well as a printed document.
5. Both documents are sent to the requested unit.
6. If the transfer request is denied, the student will be able to request a readmission evaluation from the unit where the application was requested. The request is processed as a regular request.

GRADUATION

To qualify for graduation students must fulfill the following requirements:

1. No less than a 2.00 program index and a 2.00 specialization index
2. Take and pass their last twenty-eight (28) credits at the University of Puerto Rico. (In exceptional cases this requisite may be waived upon recommendation of a committee made up of the Dean for Academic Affairs, the Dean for Student Affairs and the Chancellor of the University.
3. Must pay all outstanding debts with the University.
4. Must not be under any disciplinary action.
5. Must have finished all course work for their degree within the time-frame stipulated by the regulations. For a two-year program the maximum time allowed is four (4) years; for a four-year program the maximum time-frame is six (6). Students who exceed these limits may be required to repeat those courses that require review according to the Dean for Academic Affairs.
6. Students must file an official application for graduation during the specified dates of the semester in which they finish their course work for graduation. The application carries a fee of \$27.00 payable at the Bursar's Office. This application is valid for a period of one year. Students who do not qualify for the degree they are requesting must reactivate the application for graduation during the period when they complete the requirements.
7. Be recommended by the appropriate Faculty or Program for the degree.
8. Students must attend commencement ceremonies, unless excused by the Dean for Academic Affairs and the Dean for Student Affairs.
9. In keeping with Certification 85 2005-2006 of the Board of Trustees, students who complete the requirements for the degree in the program they are registered will be

considered graduates of the program even if they do not apply for graduation. These students will not be eligible for financial aid, and they wish to continue at the Institution, they must apply for re-admission. However, these students will not receive a diploma or a certification of graduation until they request graduation and pay the corresponding \$27.00 fee.

10. The University of Puerto Rico holds its commencement ceremony only once a year, at the end of the second semester. All degrees are conferred on this occasion. Students, who meet all the requirements for a degree at the end of the summer session, or the first semester, will receive a certificate to that effect.

Changes in Requirements for Graduation

Although the University of Puerto Rico reserves the right to make changes in the requirements for a degree in a program, students will graduate according to the requirements in force at the moment when they were first admitted to the Institution. However, students who do not fulfill the requirements for a degree in the allotted time for their program and students who resume their studies after a period of absence will have to fulfill the requirements for the class with whom they are graduating.

HONORS

Until the academic year 2011-2012, to be eligible for graduation with honors or high honors students must approve at least 50% of their required credits in the University of Puerto Rico. The students complying with this norm and who have a program index of between 3.00 and 3.32 will graduate *Cum Laude* (with honors); those with an index of 3.33 to 3.99 will graduate *Magna Cum Laude* (with high honors), and those with a 4.00 index will receive the distinction of *Summa Cum Laude* (highest honors).

Beginning in the academic year 2012-2013, to be eligible for graduation with honors or high honors (**UPRA Senate Certification 2005-06-31**), students must approve at least 50% of their required credits in the University of Puerto Rico. The students complying with this norm and who have a program index of between 3.50 and 3.69 will graduate *Cum Laude* (with honors); those with an index of 3.70 to 3.95 will graduate *Magna Cum Laude* (with high honors), and those with a 4.00 index will receive the distinction of *Summa Cum Laude* (highest honors).

This scale applies to the Graduation index, i.e. the number of credits required in their curriculum for completion of the degree.

CLASSIFICATION OF PROGRAMS

All academic programs offered at the University of Puerto Rico are assigned a number and a code. Students must know the number and code of the academic program where they are enrolled. This number and code are required in all and any documentation that students have to submit to the Registrar's Office. The following academic programs are active during the 2011-2012 academic year.

PROGRAMS

BACHELOR'S DEGREES		
PROGRAM NAME	NUMBER	CODE
Business Administration, major in Account	0302	AE-CONT-BAE
Business Administration, major in Finance	0304	AE-FINA-BAE
Business Administration, major in Management	0305	AE-GERE-BAE
Business Administration, major in Marketing	0311	AE-MERC-BAE
Science with major in Microbiology	4506	BI MICR BCN
Computer Science	1224	CC-COMS-BCN
Elementary Education	0419	ED- ELEN-BEE
Education, major in Physical Education for the Elementary School Level	0448	ED-ELFI-BEE
Nursing, Articulated	0703	EN-ENFE-BEN
Nursing Sciences	0703	EN-ENFE-BEN
Office Systems	0318	AE-SOFI-BOF
Radio and Television Communications	4201	TR-TELE-BTR
Social Sciences, major in Industrial Organizational Psychology	1624	CE-PSII-BAC
Social Sciences, major in. Ibero -American Studies	1623	CS-ESI B-BAC
Technology of Chemical Industrial Process	4501	FQ-TPRO-BPQ

ASSOCIATE DEGREES

PROGRAM NAME	NUMBER	CODE
Nursing	2404	EN-ENFE-AEN
Biotechnology Operations		
Technology of Chemical Engineering	2015	FQ-TINQ-AIQ
Veterinary Technology	2706	BI-VET-ATV

ARTICULATED TRANSFER PROGRAMS

ARTICULATED TRANSFER PROGRAM ³	PROGRAM CODE	RECEIVING UNIT
Arts with major in Economics	1603	Río Piedras
Arts with major in Psychology	1605	Cayey
Arts in Elementary Education with concentration in Special Education	0446	Cayey
Arts in Geography	1608	Río Piedras
Arts in Elementary Education with major in Teaching of English to Speakers of Spanish	0425	Río Piedras
Arts in Secondary Education with major in History	0413	Cayey
Arts in Secondary Education with major in Chemistry	0403	Río Piedras
Arts in Secondary Education with major in Family Ecology	0445	Río Piedras
Arts in Secondary Education with major in History	0413	Cayey
Arts in Secondary Education with major in Mathematics	0404	Río Piedras
Arts in Secondary Education with major in Natural Sciences	0401	Cayey
Arts in Secondary Education with major in Natural Sciences	0401	Cayey
Arts in Secondary Education with major in Physics	0405	Río Piedras
Arts in Secondary Education with major in the Teaching of English to Speakers of	0411	Río Piedras

³ For students right out of high school.

ARTICULATED TRANSFER PROGRAM ³	PROGRAM CODE	RECEIVING UNIT
Spanish		
Arts in Social Sciences	1602	Cayey
Arts with major in Anthropology	1607	Río Piedras
Arts with major in Cooperativism	1612	Río Piedras
Arts with major in Drama	0911	Río Piedras
Arts with major in English	0907	Río Piedras
Arts with major in General Social Sciences	1616	Río Piedras
Arts with major in Hispanic Studies	0909	Río Piedras
Arts with major in History	0906	Cayey
Arts with major in History of Art	0915	Río Piedras
Arts with major in History of the Americas	0918	Río Piedras
Arts with major in Humanities	0902	Cayey
Arts with major in Philosophy	0908	Río Piedras
Arts with major in Political Science	1604	Río Piedras
Arts with major in Psychology and Community Mental Health	1613	Cayey
Arts with major in Sociology	5718	Cayey
Arts with major in Sociology	1606	Río Piedras
Chemical Engineering	0505	Mayagüez
Civil Engineering	0501	Mayagüez
Computer Engineering	0507	Mayagüez
Electrical Engineering	0502	Mayagüez
Industrial Engineering	0503	Mayagüez
Land Surveying and Topography	0506	Mayagüez
Mathematics: Computing Sciences	1220	Mayagüez
Mathematics: Education	1222	Mayagüez
Mechanical Engineering	0504	Mayagüez
Multi-disciplinary Program-Tourism Culture	0934	Carolina
Multi-disciplinary Studies with major in Tourism and Culture	0934	Carolina
Natural Sciences	5905	Cayey
Pure Mathematics	1205	Mayagüez
Science	1201	Río Piedras

ARTICULATED TRANSFER PROGRAM ³	PROGRAM CODE	RECEIVING UNIT
Science in Mathematics	1205	Mayagüez
Science in Chemical Engineering	0505	Mayagüez
Science in Civil Engineering	0501	Mayagüez
Science in Computer Engineering	0507	Mayagüez
Science in Education Mathematics	1222	Mayagüez
Science in Electrical Engineering	0502	Mayagüez
Science in Industrial Engineering	0503	Mayagüez
Science in Mathematics in Computer Science	1220	Mayagüez
Science in Mechanical Engineering	0504	Mayagüez
Science in Surveying and Topography	0506	Mayagüez
Science with major in Biology	5906	Cayey
Science with major in Biology	1202	Río Piedras
Science with major in Computational Mathematics	1216	Humacao

BURSAR'S OFFICE

The Bursar's Office is part of the Finance Office, which is a division of the Office of the Dean for Administrative Affairs. This office is responsible for collecting, accounting and depositing the money received by the Institution for tuition and other related fees. Payments must be made in U.S. dollars, postal money order or certified checks made to the University of Puerto Rico, VISA, MasterCard, American Express or debit cards.

Tuition and fees for 2007-2008 and thereafter have been established by Certification Num. 60 2006-07 of the UPR Board of Trustees.

TUITION

Undergraduate credits: Including Two and Four-Year Programs, and Two-Year Technical and Service Programs

Beginning on academic year	Period for which tuition cost will be guaranteed	Cost of credit
August 2006	---	\$40.00
August 2007	2007-2012	\$45.00
August 2008	2008-2013	\$47.00
August 2009	2009-2014	\$49.00
August 2010	2010-2015	\$51.00
August 2011	2011-2016	\$53.00
August 2012	2012-2017	\$55.00

Non-Resident Students

- Tuition and other fees for non-resident students coming from the United States will pay the same out of state fees that a student from Puerto Rico would pay in a state university at the incoming students' state of residence. In other words, they student will be assessed basic tuition fee, plus related fees, and a surcharge depending of their state of origin.
- A regular student coming from a foreign country other than the United States of America will pay a tuition fee of \$1,867.50 per semester, plus all related fees.

Other fees (non-refundable)

Maintenance fee	\$47.00 per academic session (per semester and per summer session)
Technology fee	\$25.00
Health Insurance	The fee varies according to the contract between the UPR and the health insurance provider. The health insurance policy for the second semester covers students until the end of the summer session.

Other Special Fees

All applications paid after the date set on the Academic Calendar have an additional cost. Some applications also require payment for additional transcripts along with the cost of the application.

FEES	ON TIME	PAST DUE DATE
Application for Admission	\$20.00	\$30.00
Application for Readmission	\$34.35	50.85
Application for Readmission Transfer	35.70	52.20
Application for Transfer	33.00	49.50
Application for transfer within the UPR system	25.40	35.40
Application for a Reclassification	21.35	31.35
Application for a Special Permit	16.00	23.50
Application for Special Permit to UPR Río Piedras	17.00	24.50
Diploma fee	27.00	
Duplication of documents	1.35	
Laboratory fee (per laboratory)	33.00	
Identification card	5.00	
Transcripts	1.35	
Late registration (surcharge)	13.00	
Deferred payments (number of credits x \$3.00 ÷ number of installments) maximum number of installments is 5		
Fee for auditing courses (\$33.00 + \$13.00 admission fee)	46.00	

Dubitation Waiver

UPR Board of Trustees Certification 2007-08-09 and CHE Certification 159-1990-91 mandates that regular students, from second up to fifth year, who place among the top 5% of students in their program and maintain AN academic index of 3.50 or more are exempt from paying tuition fees.

Special cases: UPR Board of Trustees Certification 2007-08-09

1. First-year student-athletes belonging to a national team (adult or sub-22), players belonging to Superior League teams as certified by respective federation presidents or franchise-holders; and athletes whose records are comparable to the eight finalists in the previous "Justas Interuniversitarias" (Intercollegiate Track and Field Meet) may be considered for tuition waiver.
2. Students who have shown exceptional artistic abilities as certified by recognized and prestigious organizations may be granted a tuition waver beginning with their first year of study.
3. Tuition fees are waived for the senator elected by the Student Council, the student representative before the University Board and the Student Council president.

4. All university personnel, their spouses and children who comply with established norms are exempted from payment tuition fees. When registering, they must present the official document authorizing them to register issued by the appropriate UPR agency or Unit.

EXTENDED UNIVERSITY (UnEx)

Special fees established for the Extended University and the Division of Continuing Education and Professional Studies will remain as they currently stand and will follow the established procedures for them.

Deferred payment

1. As a general rule, students are expected to pay their tuition and fees on time. However, since it is UPRA's interest that no students fail to register due to lack of funds for payment, an installment plan has been designed to help students pay their fees.
2. Although payment for tuition may be deferred, some special fees are not covered by the deferral and must be paid in full at the time of registration.
3. The final installment of the deferral plan must be paid 10 days before the end of the semester.
4. A fee of \$3.00 per credit will be assessed for each installment paid after the due date indicated in the deferral document received by students at the time the payment plan is drawn.
5. Students who do not comply with the terms of the deferment plan by the end of the semester will not be granted another deferral for the following semesters.

Refunds

Students who withdraw from a course or courses during the first two weeks of a regular semester or during the first week of the summer session are entitled to a refund of 50% of the tuition fees. All other fees are non-refundable.

MAXIMUM NUMBER OF CREDITS TRANSFERRABLE BY PROGRAM

To ensure that our graduates achieved the desired profile, objectives, and the conceptual framework defined in our academic programs, it is required that our students be exposed to the maximum number of courses possible at UPRA. To that effect, the Academic Senate issued Certification 2002-03-25 describing the regulations for transferring credits. The regulations include a limit of 15% of concentration courses. In accordance with this certification, the following table specifies the maximum number of concentration that may be validated by academic programs for transfer to UPRA from other institutions.

BACHELOR'S DEGREE PROGRAM	CONCENTRATION CREDITS	MAXIMUM NUMBER OF TRANSFERRABLE CREDITS
Arts in Elementary Education with major in Physical Education for the Elementary Level	70	11
Arts with major in Elementary Education	63	9
Science with major in Microbiology	39	6
Business Administration with major in:		
Accounting	80	12
Finance	79	12
Management	71	11
Marketing	70	11
Office Systems	57	10
Science in Nursing	60	9
Science with major in Computer Science	45	7
Sciences in Nursing – Articulated Program*	41	6
Social Sciences with major in Ibero-American Studies	66	10
Social Sciences with major in Organization Industrial Psychology	61	9
Technology in Television and Radio Communications	48	7
Technology in Industrial Chemical Processes	66	10

* These 41 credits do not include the courses taken for the completion of the associate degree.

ASSOCIATE DEGREE PROGRAM	CONCENTRATION CREDITS	MAXIMUM NUMBER OF TRANSFERRABLE CREDITS
Biotechnology Operations	39	6
Chemical Engineering Technology	31	4
Nursing	29	4
Veterinary Technology	35	5



ACADEMIC SERVICES

LIBRARY

Certificate of Evaluation from the Association of College and Research Libraries (ACRL)

VISION

The Library of the University of Puerto Rico at Arecibo will be the information and technology center for students, faculty and researchers. It aspires to offer quality services, innovative programs and resources that lead to the formation of well-rounded professionals and citizens.

MISSION

The Library of the University of Puerto Rico at Arecibo will promote learning and academic research by providing modern technology and specialized collections. It will encourage users to develop information literacy that will allow them to access, evaluate and use information for continuous learning.

GOALS

1. To strengthen collections and services to improve the quality of leaning and to contribute to the achievement of academic goals.
2. To strengthen and systematize the assessment process to improve the quality of services.
3. To promote the development of personnel to achieve a high degree of competence and excellence in the Library's services.
4. To maintain the physical and technological facilities to meet the information necessities.
5. To promote active participation by the university and external communities in the Library's social, cultural and educational activities
6. To promote the development of information literacy, and the critical handling of information to contribute to life-long learning.
7. To take the necessary steps to acquire a budget congruent with the development of academic programs, the increase in the cost of technology, resources and services.

The Library received a Certificate of Evaluation from the Association of College and Research Libraries (ACRL).

HOURS:

Monday through Thursday: 7:00 a.m. – 9:50 p.m.

Fridays: 7:00 a.m. – 4:20 p.m.

Saturdays: 8:00 a.m. – 4:20 p.m.

Telephone: (787) 815-0000 / Extensions: 3150, 3151, 3170

WEB Page: <http://upra.edu/biblioteca>

SERVICES

The Library offers the following services:

- Book loans
- Cubicles for individual study and group study rooms.
- Interlibrary loans among the units of the UPR system and with participants of the ARIEL program.
- Projection Rooms in which films, documentaries, lectures and other instructional materials in VHS or DVD formats are shown.
- Services for persons with disabilities.
- Conference Room equipped with video projector, electric screen and electronic blackboard.
- Exhibitions Room
- Information Skills Program
- Research Rooms for the Faculty and administrative personnel.
- Room with photocopying equipment and one (1) color photocopier.
- A Video Conference and Multi-use Room

ORGANIZATION

The Library is organized in four areas: Services to the Public, Multimedia, Collection Development and Administration.

Services to the Public

- **Circulation Collection** - the majority of the information resources are kept in this area and Circulation staff is responsible for checking them in and out. The collection is housed in semi-open stacks, where users must identify themselves before entering the area.
- **Reserve Collection** - This section holds the information resources that faculty and librarians have reserved for students. These resources are loaned to be used exclusively in the study rooms. It also lends cards for wireless internet access, through

Horizon Reserve System. Students may check out the cards at the Circulation desk. Wireless may be checked out for a period of four hours. Students must present their ID card for this service. Faculty and non-teaching personnel may also use this service.

- **Electronic Reserve** – Faculty may send teaching materials to be digitalized in the Library. This internet-based service is offered through the BlackBoard platform. A file is created for each instructor, for each academic department and for each course. Students may access the materials through a password provided by the Library. This service, although accessible from any internet connection, is only available to UPRA students. All scanned documents are subject to all copyright laws, which mean that book chapters or journal articles will only be posted for a month. All documents generated by instructors will remain available for a semester.
- **Child and Young Collection** - This collection consists of materials with ideas for projects, books, audiovisual resources for children and youths. The staff offers its services to students of the Elementary Education Program, especially those enrolled in Methodology of Education and in student teaching.
- **Arecibo Collection, UPRA Historical Archives and Special collections** – This area serves to organize and preserve bibliographical, historical and cultural of the city and other municipalities in the vicinity. It also collects and preserves outstanding documents relevant to the history of the Institution. It also has some personal libraries bequeathed to the UPRA Library such as that of the poet Francisco Matos Paoli and Arecibo educator Librada Rodríguez Vda. de Ramos.
- **Reference Collection and Data Bases** - It holds the principal general reference resources of the Library such as *Microjuris*, ADENDI (the archives of *El Nuevo Día*) *Latin American Studies*, *ERIC*, *ProQuest* and *EBSCO HOST* (an index of reviews and newspapers in English. with complete texts).
- **Virtual Reference** – In 2007 the library began the Virtual Reference Services. This service is a collaborative project between the Libraries of University of Puerto Rico campuses at Arecibo, Humacao, Carolina and Medical Sciences. This service uses the electronic tools at Chat, Electronic Mail and FAQ's. At this moment the hours services are Monday at Friday at the 8:00 a.m. – 8:00 p.m. Saturdays 10:00 a.m. at 12:00 m.
- **Room for Technological Assistance for Persons with Disabilities** - The staff provides assistance to users with disabilities and promotes information about technological assistance equipment. The services include the Aladdin personal reader, a computer with Zoom Text, the *Open Book* Program, *Inspiration*, *Wynn*, *Jaws*, two recorders for educational use and Braille materials.
- **Periodical Collection** – This collection holds more than 1,000 titles of reviews, magazines and newspapers, both local and international. A significant number of these are received in microforms.

Multimedia

It is housed in the second level of the Library and includes the Exhibitions Room, the Conference Room, the Library Instruction Program, the Music Collection, and the Video Collection. The installations and services of this area are available to all members of the university community.

- **Conference room** - This room holds around seventy-five persons. It is equipped with computers, electronic blackboard, and a video and data projector.
- **Exhibition Room** - This area provides a space for art exhibits and presentation of other cultural and educational activities for the university community.
- **Video Conferencing and Multiuse Room** - This room equipped for 25 users is located on the second floor of the Library next to the Reference Room. The videoconferencing system allows for the same type of presentation and exchange as a traditional classroom setting. The room is equipped with document coder/decoder, audio and projection system, computers, graphic converters, electronic board, video camera, VCR, television sets, and others. The reservation forms and the regulations for the use of this room may be found at Multimedia Area of the Library.
- **Information Skills Program** - This program strives to provide users with the necessary information skills for research and to allow them to become independent users capable of critically evaluating the written and electronic resources provided by the Library. Users are instructed by means of workshops, demonstrations and presentations. Students are provided with orientation about term papers, reports, bibliographies and other similar tasks. The laboratory is equipped with 24 computers, data projector, electronic board and projection screen. Program staff designs instructional modules, didactic materials and promotion material for Library services.
- **Music Collection** - The collection includes acetate records, compact discs, and cassettes with a variety of musical genres, lectures, poetry, sound effects and language courses. The area is equipped with several cubicles for individual listening.
- **Video Collection** - The collection includes a variety of films, documentaries and other materials in VHF and DVD formats. It includes equipment for group or individual use.

Collection's Development

Acquisition and cataloging of information resources are concentrated in this area. The Library personnel of this area perform both functions and also serves as liaison with academic departments.

- **Acquisitions** - Staff works on the acquisition of the information resources that will be incorporated into the collections, either through purchase or donations. Along with the Resource Selection Committee, they evaluate new resources. receives them,

processes payments, and purchases materials, equipment and maintenance services for the Library. They use the FRS mechanized system and the Horizon acquisitions module.

- **Cataloging-** The cataloging staff performs the technical processing of the acquired resources through the description of their contents and the corresponding labeling. They also control the Horizon System online catalog. The staff periodically inventories the collections. These tasks are performed using the Horizon Cataloging System, the Bibliophile On-line mechanized system, the Library of Congress' data base and other on-line catalogs.

ADMINISTRATIVE OFFICES

The Office of the Library Director is located in the first level. Its functions include coordinating of the services offered by the various offices, managing the budget and supervising personnel.

- **Library Friends Association-** This organization aims to serve as liaison between the UPRA academic community and the Arecibo region. It also promotes the use of the Library and its information resources, fostering social, cultural and intellectual development. It also promotes Puerto Rican and universal cultural values.
- **Library Student Association-** The Library Student Association (AE-BIBLIO) serves as a link between the student body and the activities and special projects sponsored by the Library.

LIBRARY FACULTY

Amador Torres, Nilda. M. L. S., MA of Library and Information, Universidad de Puerto Rico, Recinto de Río Piedras, Librarian III.

Corchado Reyes, Ángel M. M. L. S; MA of Library and Information, Universidad Interamericana de Puerto Rico, Recinto de San Germán, Librarian II.

Deida Medina, Moisés. M. L. S., MA of Library and Information, Universidad de Puerto Rico, Recinto de Río Piedras, Librarian III.

Fuentes Sánchez, Marinilda. M. E. T., MA of Library and Information, Universidad de Puerto Rico, Recinto de Río Piedras, Librarian III.

Maldonado Maldonado, Víctor. M. M. L. S, MA of Library and Information, Universidad Interamericana de Puerto Rico, Recinto de San Germán, Ed.D. Candidate in Education NOVA Southeastern University, Miami, FL., Librarian II.

Maldonado Rivera, Jadira. M. L. S., MA of Library and Information, Universidad Interamericana de Puerto Rico, Recinto de San Germán, Librarian III.

Ríos Ramos, Luis. F.; M. L. S. MA of Library and Information, Universidad de Puerto Rico, Recinto de Río Piedras, Librarian IV.

Roldán, Plumey Blanca; M. L. S. MA of Library and Information, Universidad de Puerto Rico, Recinto de Río Piedras, Librarian II.

Santos Orozco, León, D.; M. L. S. MA of Library and Information, Universidad de Puerto Rico, Recinto de Río Piedras, Librarian I.

HONOR'S PROGRAM

The Honors Studies Program is a unique experience for those students who want to make the most of their university education. Its objective is to enrich the educational development of students in an interdisciplinary framework. Students follow their chosen program of studies and take courses Honors courses as electives. Students from all programs are admitted. They take special courses, seminars, tutoring and do research in their areas of specialization.

Benefits

1. Individualized academic counseling
2. Early pre-registration and registration
3. Access to publishing essays, scientific articles and creative literature.
4. Informal lectures, conferences, workshops and field trips, among others, designed to achieve the Program's objectives.
5. Honor courses and seminars
6. Participation in symposia, scientific congresses, conventions, encounters, cultural and study trips in Puerto Rico or out of the country.
7. Letters of recommendation as needed by participants.
8. Study areas reserved for their use.
9. Flexibility in Library services, such as extended book loans
10. I.D. card with the program logo identifying students as active Honor Studies participant
11. Exemption from tuition and fees after freshman year.

Requirements for Admission

Entering the Program is voluntary. In addition to an outstanding academic record, students are expected to have leadership characteristics, academic commitment and self-reliance.

1. Students of Associate or Bachelors degrees are eligible.
2. Freshmen must have an index from 5% to 10% above the GAI of students admitted the preceding academic year.
3. Regular students with an average index of 3.5 or more may seek admission to the program if they comply with the requirements for freshmen, without taking their GAI into consideration.
4. All applicants must complete an application for admittance to the program.
5. Applications must be accompanied by at least three references from their high school of origin.
6. Applicants will attend an interview with the director and the members of the Honors Program Steering Committee.

Retention

1. All students in the Program must maintain a general academic index of at least 3.50.
2. They will receive academic advising from the Program Director or one of the members of the Steering Committee.
3. Attendance to meetings and co-curricular activities is required. Students who do not fulfill this requisite may be separated from the Program.

Minimum academic requirements for receiving an Honors Certificate

1. Students must pass a minimum of eight (8) Program credits with A or B. Equivalent courses, special courses, honors seminars, independent studies and tutoring are included.
2. Students must complete an original research project in their area of specialization. The proposal for this project must be submitted to the Steering Committee for approval.
3. Students must participate in co-curricular activities.
4. Students must comply with the required community service activity.

CENTER FOR ACADEMIC SUPPORT AND DEVELOPMENT (CADA)

The Center for Academic Development and Technology Support aims to help students obtain a diploma with a high degree of excellence. Through its Student Academic Development and Support component, it provides individualized and group assistance either through direct services or through electronic means. CADA offers tutoring, mentoring and support services including the use of Moodle, e-mail, the use of computers and internet. Academic support is provided in coordination with faculty. CADA's facilities are in the Title V Building, next to the main building.

Contact information

Telephone: 787-815-0000 Ext. 6015
email: ileana.harrison@upr.edu.

CENTER FOR RESEARCH AND CREATION (CRC)

The CRC provides faculty and students the necessary mechanisms for intellectual and creative development to foster the strengthening and transformation of knowledge by means of research and creation. It consists of three principal components that impact the whole university community. The academic component includes the resources for research and creation aimed at students. Its main purpose is to identify the ways to help students benefit from research and creation at the state, national and international levels. This goal may be reached in three main manners: participation in federal programs, in consortia with private industry (e.g. COOP-UPRA), and through scholarship and internship programs.

Activities and programs under the CRC include the following:

1. Integrated Science Multi-use Laboratory (ISMuL). The Integrated Science Multi-use Laboratory is designed to promote the advancement of education in science, mathematics and technology using a variety of approaches and techniques. This program, financed mainly by *Puerto Rico Space Grant Consortium* (PRSGC) funded by the National Aeronautics and Space Administration (NASA), functions in a multidisciplinary, interdisciplinary manner and at different levels. The University of Puerto Rico in Arecibo serves as the base for this endeavor which supports students and educators in their search of innovative strategies for the teaching/learning of sciences and mathematics. Its fundamental purpose is to improve the quality of the teaching/learning process in the sciences and mathematics in order to stimulate students to follow careers in these areas and other related fields. To achieve this aim motivation, professional development and research opportunities are offered to students and teachers.
2. Hispanic Association of Colleges and Universities (HACU) The Hispanic Association of Colleges and Universities, through its National Internship Program, have provided thousands of students from Puerto Rico and the United States with professional experiences in federal agencies and private corporations. Students are selected three times during each year: in fall, spring and in summer. Participants may be assigned to work anywhere in the United States, in metropolitan Washington D.C. or in Puerto Rico. Participation in a HACU internship is an excellent opportunity for students to acquire and/or develop professional skills related to their major. Some of the tasks assigned include research and research analysis, webpage creation, public health polling, writing communiqués and perform audits. For more information on the requirements for this internship and the application procedure, students may access HACU at www.hacu.net.
3. Puerto Rico-Louis Stokes Participation Program (PR-LSAMP) - The PR-LSAMP program is an alliance between the Resource Center for the Sciences and Engineering

of the UPR Río Piedras Campus,, the University of Puerto Rico System, the Inter American University System, the Pontifical Catholic University of Puerto Rico, and the Polytechnic University of Puerto Rico with the goal of furthering university teaching in Puerto Rico.

The activities of the PR- LSAMP program include a research component to encourage students to participate in scientific projects and present the results of their work in scientific congresses; mentoring for the development of student communication and leadership skills; electronic modules to increase the interdisciplinary skills in the areas of chemistry, biology, physics and mathematics; Internet-based interactive learning to teach concepts in science and mathematics; the establishment of teaching/learning strategies designed to improve the academic performance; and the development of technological information skills to provide students with the opportunity to use electronic information in a more effective and critical manner.

STUDENT EXCHANGE PROGRAM

The Student Exchange Program is a consortium of several worldwide recognized universities that gives students the opportunity to spend a semester or year at an accredited institution in a foreign country. Credits taken at the university will be transferrable to UPRA. The Program allows students to know other cultures and educational systems.

The Program office provides information on the application process, financial aid and academic advisement to interested students.

COOP COURSE INTD 995

UPRA COOP Course INTD 4995 is an academic opportunity that enables undergraduate students from all departments to complement formal education with practical work experience directly related to student's academic major. CO-OPS can complete a maximum of three terms work experiences or internships. The applicant must possess a 2.50 GPA to qualify for the program.COOP student are classified as full time students regardless that the course in only three credits.

DIVISION OF CONTINUING EDUCATION AND PROFESSIONAL STUDIES (DCEPS)

VISION

Become the means over which the Institution keeps strong ties with its graduate students; fulfills the mission of paying attention to the higher education needs in the northern-central area; and its commitment in the continuous search for new ways of dynamic responses of present and future challenges and opportunities. This relationship becomes real through a pertinent, excellent, extended and dynamic offering with high quality services for a professional and personal development of non traditional students.

MISSION

Offer innovative programs and academic activities of excellence, with or without academic credits leading to helping life long learning needs. The Department of Continuing Education and Professional Services (DECEP) guarantees and perpetuates the mission of the University of Puerto Rico at Arecibo, its incorporation into global education, and its contribution to the socioeconomic and cultural development, as well as taking care of the immediate needs of the areas it serves in a fast and dynamic way.

SERVICES

DCEPS offers the following services:

- Professional and personal improvement courses
- Professional certifications
- Seminars
- Workshops
- Trainings
- Conferences
- Continuing education activities sponsored by non profitable organizations, departments or offices of the university system with DECEP as a co-sponsor.

To guarantee a quality of service, resources at DECEP are highly qualified in their field of expertise and hold a broad field work experience.

PROGRAMS ASSIGNED TO DECEP

- GAOB –Associate Degree in Biotechnology Operations
- PREAS - Pre-university Program for Academically outstanding students
- CCPNT - Center for Early Childhood Teaching
- Educational Services Programs for Correctional Institutions in Puerto Rico

- University Articulated Program
- Short term courses, Workshops, Seminars, Exam Reviews and Professional Certificates
- Business Courses
- UNEX or Extended University: Offers courses not in a curricular sequence, programs and certificates to non traditional students.

Schedule

Monday through Friday: 8:00 am - 12:00 pm and 1:00 pm - 6:30 pm

Saturday: 7:30 am - 12:00 pm

Contact Information

(787) 879-1118 (Phone)

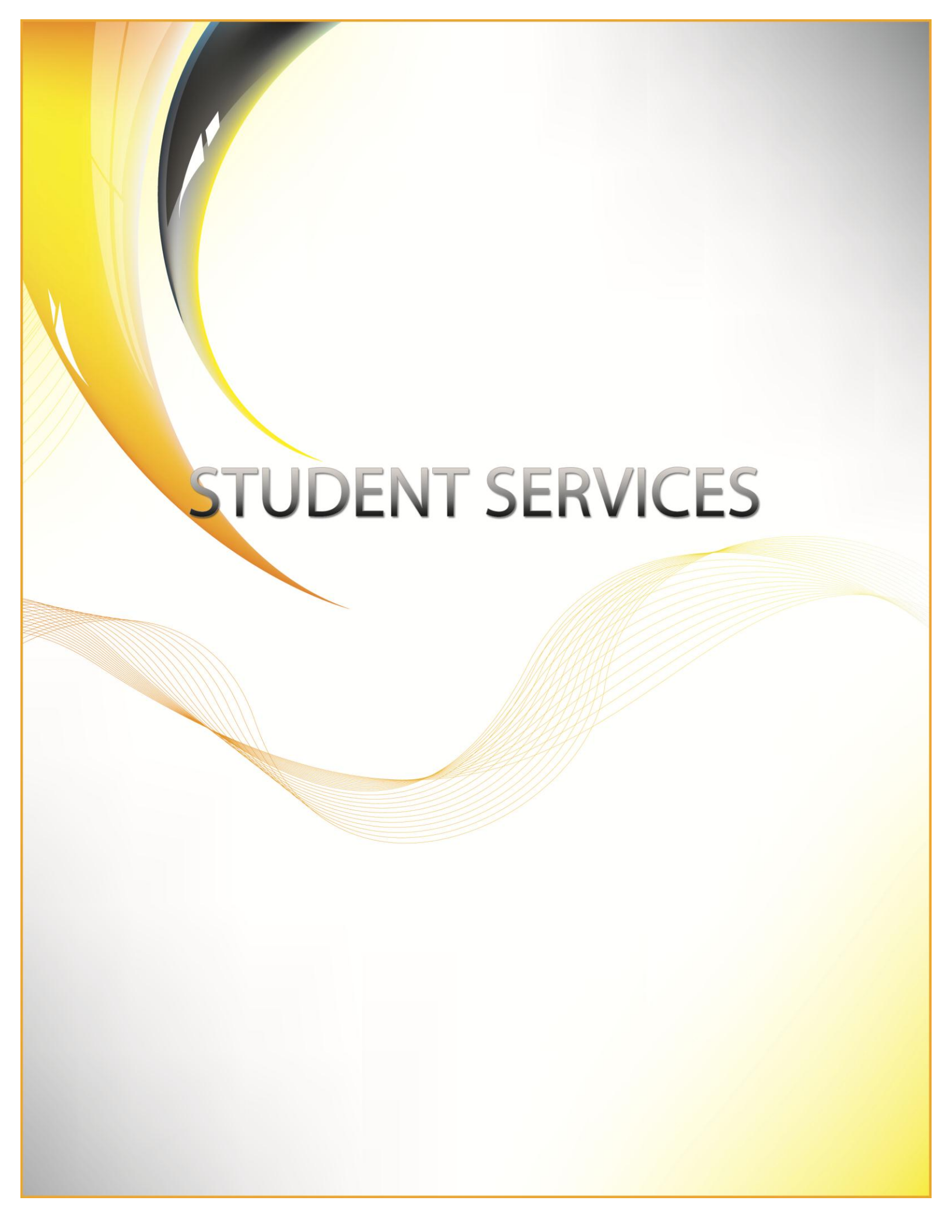
(787) 878-4146 (Phone and Fax)

(787) 815-0000 Ext. 3200 and 3210

Email: infodecep.arecibo@upr.edu

Webpage: decep.upra.edu





STUDENT SERVICES

FINANCIAL AID

The Financial Aid Office's principal function is to help students deal with socio-economic problems that may affect their academic performance. This function is performed through an extensive financial aid program. The resources for this program come from: the U.S. Government (federal funds), the Government of the Commonwealth of Puerto Rico (state funds), and private entities.

Hours

The Financial Aid Office is open from Monday through Friday from 8:00 a.m. until noon and from 1:00 p.m. until 4:30 p.m.

FEDERAL AID

Pell Grant

- Serves as the base to determine eligibility for the Financial Aid Programs
- Can be applied for through the Federal Student Aid Application, which students may obtain in the Financial Aid Office of the University, the Office of the Educational Opportunities Center (COE), in area high schools, and, online, at www.fafsa.gov.
- The amount granted depends on the eligibility determined by the federal government and the number of credits in which students are enrolled.
- Eligibility ends when students complete the requirements for the degree they are registered for, or may be prolonged up to 150% of the time allotted to complete a degree.
- To continue their eligibility to this and other sources of Title V aid, students must show satisfactory academic progress. (See Norms for Academic Progress to Determine Eligibility for Financial Aid Programs.)

Supplementary Federal Grant (FEOG)

- Funds reserved for students with the greatest economic need.
- Students registered for six (6) credits or more qualify for this aid, but students carrying a full academic load (12 or more credits) have priority.

Federal Work-Study Program (FWSP)

- Matched federal and institutional funds.
- Students are assigned work related to their field of study, whenever possible.
- Students are paid the Federal minimum wage.
- Students work within the university.

Academic Competitive Grants (ACG)

- Available to students who have completed a rigorous secondary school program after May 1, 2005.
- Students must have a minimum cumulative GPA of 3.0.

National Science and Mathematical Access to Retain Talent Grants (SMART)

- Are federal funds awarded to second and third college students who are majoring in mathematics or science
- Participants must maintain a 3.00 GPA.

Stafford Loan Program

- It is a loan that does not accrue interests while the student is an active student at an accredited university, with an academic load of no less than six (6) credits.
- The amount of the loan fluctuates between \$3,500 and \$5,500, depending on the students' academic level (undergraduate, graduate, professional certificate, etc.).
- Recipients will begin paying the loan six (6) months after either finishing their studies, or when they leave the university, or when they register for fewer than six (6) credits.
- Before disbursing the loan, the Institution can subtract from the loan amount any outstanding debt that students have with the Institution.

Years of Undergraduate Study	Maximum Loan
first year	\$3,500
second year	\$4,500
third and fourth Years	\$5,500

- The amounts mentioned will never exceed the cost of studies (minus other financial aids received by the student)

STATE AID

Legislative Scholarships Program

- Students registered for six (6) credits or more qualify, but students with a full academic load (12 credits or more) have priority.
- The amount awarded will depend on the number of credits in which students are enrolled.

Leveraging Educational Assistance Partnership (LEAP)

- combined federal and state funds
- Only students with the greatest economic need are eligible.

Private Scholarships*

- Abbott Laboratories
- Army Emergency Relief
- Banco Popular – Richard Carrión Jr. Trust
- Banco Santander
- Citizens Scholarship Foundation of America
- Clara Abbott Foundation
- Cornell Tuition Scholarship
- Fondo Rafael Carrión, Jr.
- Gates Millennium Scholar
- Johnson & Johnson
- José Jaime Pierluisi Trust
- Methodist Church
- Phillips Van Heusen Corp.
- Presbyterian Church
- Ronald McDonald Children's Trust
- Rosa E. Axtmayer Trust
- Upjohn Manufacturing Co.

General Requirements for Eligibility to Receive Financial Aid

1. Being admitted to an institution in a program leading to an academic degree.
2. Being a citizen of the United States of America or have a permanent resident status.
3. Maintaining satisfactory academic progress (see **Norms for Academic Progress to Determine Eligibility for Financial Aid Programs**).
4. Submitting the Application for Financial Aid and the required documents on time.
5. Demonstrating financial need according to federal and state regulations.
6. Accepting in writing any offer of financial aid before disbursement of the aid money.
7. Signing documents related to:
 - Drugs and Alcohol Abuse
 - Educational Purpose
 - Information related to scholarships
 - Reimbursement Policy
 - Delinquency on payment of loans
8. Maintaining satisfactory academic index in accordance with the Satisfactory Academic Progress Policy

* The application for private funds must be made directly to the granting organization.

9. Keeping the Institution informed of any change of address or status related to loans.

POLICY AND NORMS FOR ACADEMIC PROGRESS TO DETERMINE ELIGIBILITY FOR FINANCIAL AID PROGRAMS IN THE UNIVERSITY OF PUERTO RICO

(UPR Board of Trustees Certification 44-2005-2006)

The policy and norms for academic eligibility aim to insure the best possible use for financial aid programs and encourage students who benefit from these forms of aid to maintain adequate academic progress, both quantitative (academic index) and qualitative (progress towards obtaining a degree). This policy and these norms are applicable only to undergraduate students, i.e. those enrolled in associate degree or bachelor's degree programs.

Among the norms which determine eligibility for participation in financial aid programs are:

- Students must be officially enrolled in a program leading to a degree.
- Students must attain the minimum general academic index required for retention in their course of study. This index may not be less than 2.0.
- Students must pass 70% of credits attempted during the academic year previous to the evaluation required under these norms.
- Students may attempt up to 150% of the credits required by their academic program. This percentage applies even if students have not previously received financial aid.

TITLE IV REIMBURSEMENT POLICY

The Title IV Policy for Reimbursement states that any student that withdraws completely from the university, formally or informally, without completing 60% of the semester will receive only the amount of financial aid corresponding to the percentage of the completed part of the semester. This policy includes grant monies from such sources as completed of the study PELL, FSEOG, ACG, National SMART, loans and others.

The time of withdrawal to be used in the determination of reimbursement of Title IV funds will be:

- For students who formally withdraw and provide a written notice (Total withdrawal application form), the date in which they began the withdrawal process will be used; that is, the first date that appears on the withdrawal application form.
- For students who withdraw informally (who either stop attending classes or do not complete the withdrawal application form) there are two categories:
 - Special circumstances out of the student's control (sickness, accidents, death, etc.) On this premise, the withdrawal date shall be that determined by the

University taking into consideration the students special circumstances. (The UPR unit may use the last day the student went to class according to the professors' attendance records.)

- All other withdrawals where no official notice is given: For this type of withdrawal, the date that will be considered is the “midpoint date”, or 50% of the academic calendar for the semester, quarter session, etc.

SERVICE OFFICE FOR DISABLED STUDENTS AND LAW 51 PROGRAMS

Goals:

- Promote the development of an institutional policy to guide the assistance services to the disabled members in teaching and research.
- Identify the College curricula for basic content areas to include the needs of the disabled members and establish a source bank of profesional and community members capable of offering services to disabled people.
- Establish a liason with the corresponding agencies which offer services to disabled people.
- Promote and distribute information about Law 51.

Responsibilities

- Promover la investigación y adaptación de tecnología moderna que favorezcan las necesidades de la pobla-ción de personas con impedimentos.
- Capacitar un número razonable de profesionales que brinden servicios a las personas con impedimentos de acuerdo a la demanda por estos.
- Proveer, en coordinación con Universidades especializadas en el trabajo con estudiantes con impedimentos y otras agencias, información y servicios actualizados como parte de la educación continua.

Services

- Coordinate cases with special needs
 - Establish links with the agencies offering student services and for people with disabilities.
 - Promote a more inclusive environment.
- Facilitate the integration into college life and provide equal rights among the students participating in the program through:
 - Counseling on the rights and benefits offered in the program.
 - Coordination of special needs as needed in every condition.
 - Pre-registration and Early Registration.
 - Referrals to the Vocational Rehabilitation Office.
 - Referrals to the corresponding service offices from the University of Puerto Rico at Arecibo.

Contact Information

Oficina de la Procuraduría Estudiantil
PO Box 4010 Arecibo P.R. 00614-4010
Tel: (787)815-0000
Ext: 4050
e-mail: blanca.torres1@upr.edu

ACADEMIC ADVISEMENT PROGRAM

The UPR General Rules and Regulations Handbook defines academic counseling as the “direct advice that an expert professor offers students on the selection, elaboration and coordination of their academic programs” (Article 100, Section 100.11).

The concept of academic counseling refers to the planning activities of the academic curriculum that must be followed by students. These activities include the planning of the student schedule, orientation about changes in student schedules (registration, withdrawal from courses and re-classifications) and the interpretation of the regulations and norms governing registration, re-classification, transfers, procedures, retention, probationary status, partial withdrawals, total withdrawal, satisfactory academic progress and class attendance.

In general, academic counseling refers to the advice given to students on how to complete the requirements for the desired degree in the allotted time, according to its curriculum and institutional norms. Every department designates academic advisors for students enrolled in its programs.

DEPARTMENT OF COUNSELING AND PSYCHOLOGICAL SERVICES

MISSION

The mission of the Department of Counseling and Psychological Services is to integrate the physical, emotional, cognitive, social and spiritual development of our students. The Department’s goal is that students show a holistic development in their ability to respond effectively, maturely and creatively to the demands and needs of their lives within their social context. This is achieved by providing students personal, educational and vocational counseling; helping them develop the skills that allow them to reach their goals and providing them with significant learning experiences that promote the principles and values upon which our culture is built, freedom of thought and expression; and differences of opinion.

VISION

The Department will constitute an interdisciplinary team of resources that will develop effective work strategies with the goal of impacting our students. Furthermore, it will educate the university community about its fundamental role within the learning and teaching process. The Department will insert itself into the university community serving as a resource center that responds in an innovating and adequate manner to the needs of the population which it serves.

To achieve this mission and vision, the Department offers the following services:

- Academic Orientation – complements the learning and teaching process by encouraging study habits, strategies and styles of learning.
- Vocational Counseling – students are helped along the road to self-discovery to help them choose a professional path according to personal and environmental factors
- Personal Counseling – Students are provided with effective options to help them achieve fulfillment and success in their personal, academic and professional lives.
- Psychological Services – The Department provides evaluation and therapeutic help in clinical psychology to those members of the community who require it.

MEDICAL SERVICES

Medical services are available at the Infirmary, located in the Student Center. The staff, which includes nurses and two medical doctors (on a part-time basis), provides attention during the following hours:

Monday through Thursday 8:00 a.m. – 8:00 p.m.
Fridays 8:00 a.m. – noon / 1:00 p.m. – 4:30 p.m.

During registration all students must present evidence of health insurance. UPRA offers a health insurance plan with a various options of coverage for students who are not insured. University employees are exempt from this requirement.

ATHLETIC ACTIVITIES

The Athletic Department promotes student participation in athletic activities according to individual interests. These activities include interuniversity, intramural and recreational events.

The interuniversity phase provides opportunities to students who possess outstanding athletic abilities to represent UPRA in tournaments sponsored by the Interuniversity Athletic League.

The intramural phase provides students, alumni and university personnel the opportunity to participate in sports competitions with other members of the university community. The recreational phase allows students to participate in such events as chess and table tennis tournaments, among others.

Athletic facilities at the University include an indoor court (used for volleyball, basketball, Olympic wrestling and judo), a weight room, a sport therapy room, a tennis court, a softball field and a track.

SOCIAL AND CULTURAL ACTIVITIES

The Office of Social and Cultural Activities aims to expand academic life with the development of cultural, civic and social activity. The Office sponsors a yearly activity program including lectures, concerts, plays, art exhibits, film and social events.

ID CARD

Students must always carry their personal non-transferable ID card. They must present the card when required by any member of the Faculty, Administration or the University Police.

At the beginning of the school year, a period is announced when first year students may obtain their ID card. A student may obtain a replacement for a lost card in the Office Photogra pher after payment of the required fee.

STUDENT ORGANIZATIONS

According to the UPR By-laws, all student organizations must be evaluated and certified by a committee appointed to that effect. This committee includes two faculty members, a representative from the Office of the Dean for Student Affairs, and two student members appointed by the Student Council from among its members.

Activities sponsored by student organizations may not include advertisement for cigarettes, alcohol or drugs. Among active organizations, recognized by the University are the following:

- Accounting Students Association
- ACTRE
- Alahi- Experimental Arts Association
- American Chemical Society
- Ansel Adams – Photography Association
- Asociación de Ajedrez del UPRA
- Animal Health Student Association
- Association Cristiana de Intercesores
- Asociación de Estudiantes Estadistas de Arecibo
- Asociación de Jóvenes Universitarios Populares del Colegio de Arecibo
- Association of Finance and Economics Students
- Association of Management and Marketing Students
- Association of Technology Students
- Aullido Verde
- Biology Student Association
- Business Administration GET Student Association
- Capítulo Universitario Cámara de Comercio
- Chemical Technology Students Association
- Christian Students Association
- Club Leo UPRA
- Club de Leones UPR
- Computer Science Student Association
- FADU
- Fraternidad PHI BETA LAMBDA
- Fraternidad PHI ETA MU
- Future Business Leader of America
- Honors Program Association
- Ibero-American Student Federation
- Industrial Psychology Students
- Library Student Association
- Literary Organization “Entre Tinta y Papel”

- National Association of Education Students
- Nursing Graduating Class
- Nursing Students Association
- PAIECA – Television Production Association
- Pesitas Lobos de Arecibo
- Radio and TV Communication Student Association
- ROTARACT Club UPRA
- Student Association of Administrative Professionals
- Student Council
- Student Counselor Association
- Student Microbiology Chapter -CEMA
- Student Support Services Association
- Student Weightlifting Association
- Vertice – Public Relations and Advertising Association

ARTISTIC GROUPS

- Club de Arte Francisco Oller
- Histriones Student Theater Group
- Tuna Estudiantil
- University Student Band
- Concert Choir
- UPRA Women’s Choir
- UPRA Dancers

VOCAL GROUPS

Concert Choir

The concert choir was founded in 1979. The group is part of the Humanities Department. Its members are distinguished by their love of music, their discipline and their commitment with the Institution.

Purpose:

The main purpose of the Concert choir is to offer an alternative to students who, through a rigorous audition, show their aptitude for singing and the choral discipline. These students are offered the experience of performing a varied repertoire including spiritual or sacred music and non religious or secular music belonging to different historical periods, as well as Latin American and Puerto Rican folk music.

The concert choir has performed in many international tours in diverse countries such as the Dominican Republic, Venezuela, Panama, Mexico and the United States, among others. It has also participated in different concerts and festivals in Puerto Rico as part of their cultural work.

Female Choir

The female choir is a combination of unique same voices maintaining a string distribution of soprano, mezzo soprano and alto singers. The choir is distinguished by their sonority and tessitura which are practically devoted to a G musical key. The group offers its members, with a singing aptitude, with little or none choir experience, the opportunity to begin in the art of an a cappella musical choir.

Program Admission Requirements

- Be an active student of the University of Puerto Rico at Arecibo.
- Be present at an audition.
- Have taken or be enrolled in the Theory and Dictation I & II (MUSI 3175 and MUSI 3176).
- Be available to comply with the choir's rehearsal and activities schedule.
- In some cases, a letter of recommendation could be requested.

Benefits

Students participating in the choir program could receive an exemption to the registration payment, only if they comply with the following requirements among others, as established in the Enrollment Rights Institutional Policy of the University of Puerto Rico (Vice presidency of Academic Affairs, March 9, 2011) or with the current document:

- Be a member of the choir for one consecutive year.
- Have a minimum of 24 approved credits.
- Must not exceed three (3) absences during the semester.

HISTRIONES STUDENT THEATER GROUP

The Histriones University Theater group is an academic and student organization part of the Humanities Department which is part of the Deanship for Student Affairs and the Deanship for Academic Affairs. Histriones has been recognized by the Chancellor's office and by every university organism as the official theater group of the University of Puerto Rico at Arecibo.

Foundation

The Histriones University Theater group was founded in 1984. The Theater Workshop of the Humanities Department was the first name given to the group. In the 1990's the group became registered as a student association. The students members were given a scholarship, equal to the one granted to athletes.

Vision

Become one of the highest quality theater groups and receive exposure in the UPR system as well as internationally.

Mission

Develop the scenic art, from various perspectives, from all its members and present their work to the community outside and inside the campus.

Goals

- Develop a pattern of theatrical and academic activities, allowing the development and appreciation of the arts through theatrical productions, having Histriones as the center for dramatic and artistic performance.
- Contribute in the recognition of college theatrical arts by the community inside and outside of the university.

Objectives

- Foster the appreciation and respect for the theater art.
- Organize and arrange everything related with the institutional theatrical activities from an academic, social and cultural perspective.
- Contribute in the recognition of the theater college arts by the members of the community, inside and outside the campus.
- Develop theatrical performances as an educational, cultural and social means.
- Enrich the theatrical cultural tradition of our members through educational means and the teaching of the theater art as an expression of creativity and thinking of human beings.
- Provide every college student with an artistic and cultural experience which will contribute to their cultural, academic and personal development.
- Represent UPRA in theatrical festivals and activities.

FRANCISCO OLLER STUDENT CLUB

Foundation:

The Francisco Oller Student Club is an interdisciplinary association. It was founded by the Painting I (Arte 3125), Basic Painting (ARTE 3135) and Painting Processes (ARTE 3816) students on April of 2008. Dr. Elvin González Sierra teaches and coordinates, along with the students, all group activities. The Club is part of the Humanities Department.

Vision

Develop and art club with the scope and exposure in the UPR system as well as regional exposure.

Mission

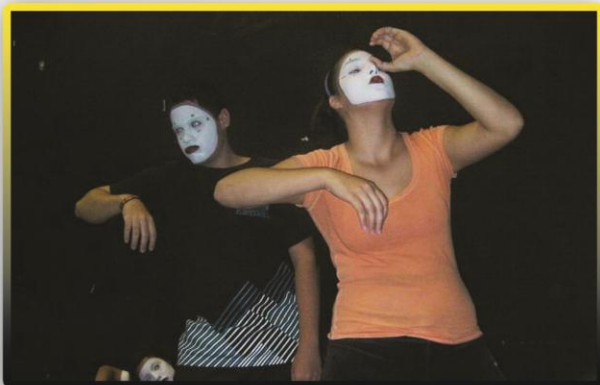
Foster the appreciation and enjoyment of the arts, particularly painting, as a manifestation of the creativity of human beings throughout history.

Goals

- Foster an interest in the Arts, specially painting, as an expression of the thinking and creativity of human beings throughout their development.
- Stimulate the artistic and creative capability among its members.
- Disseminate the production of its members to the internal and external community.

Objectives

- Stimulate the development of a critical and evaluation judgment of an artistic work.
- Foster the development of skills and artistic pictorial abilities of students through the study, evaluation, and the creation of sketches and paintings.
- Organize activities such as workshops, exhibitions and conferences, among others.





PUBLICATIONS

LIBRARY BULLETIN

The *Library Bulletin* of the University of Puerto Rico at Arecibo has the purpose of informing and orienting the university community on the services and resources of the Library. It is a forum to present subjects on library work and the most recent trends in information science. It aims to stimulate the optimal use of resources, and it is also a promotional device for activities sponsored by the Library.

CUARTO PROPIO

CUArto Propio is one of the cyber-journals of the University of Puerto Rico at Arecibo and is edited by the Spanish Department of the University. Its purpose is to promote academic research in the area of the Humanities, Social Sciences and Cultural Studies. It is an interdisciplinary review that also seeks innovative artistic creation. Collaborations from members of the university community and the general public are accepted. Rules and criteria for publication can be seen in the Call for Papers section of the journal's website at <http://cuartopropio.upra.edu>.

EL AMAUTA

El Amauta is a semi-annual electronic journal of the Program of Ibero-American Studies of the Department of Social Sciences. The review has among its goals the diffusion of the research being developed the professors who are part of the program, to contribute to the historiographic debate and the contemporary critical thought. *El Amauta* accepts contributions from researchers at other academic institutions, and of papers related to the areas of interest. Its electronic address is: <http://Iamauta.upra.edu>. *El Amauta* is part of a Bachelor's Degree Project that includes in its fundamental activities a Seminar of Study on contemporary philosophical debates and Ibero-American thought, and a study tour in Ibero-American countries during the Summer Session.

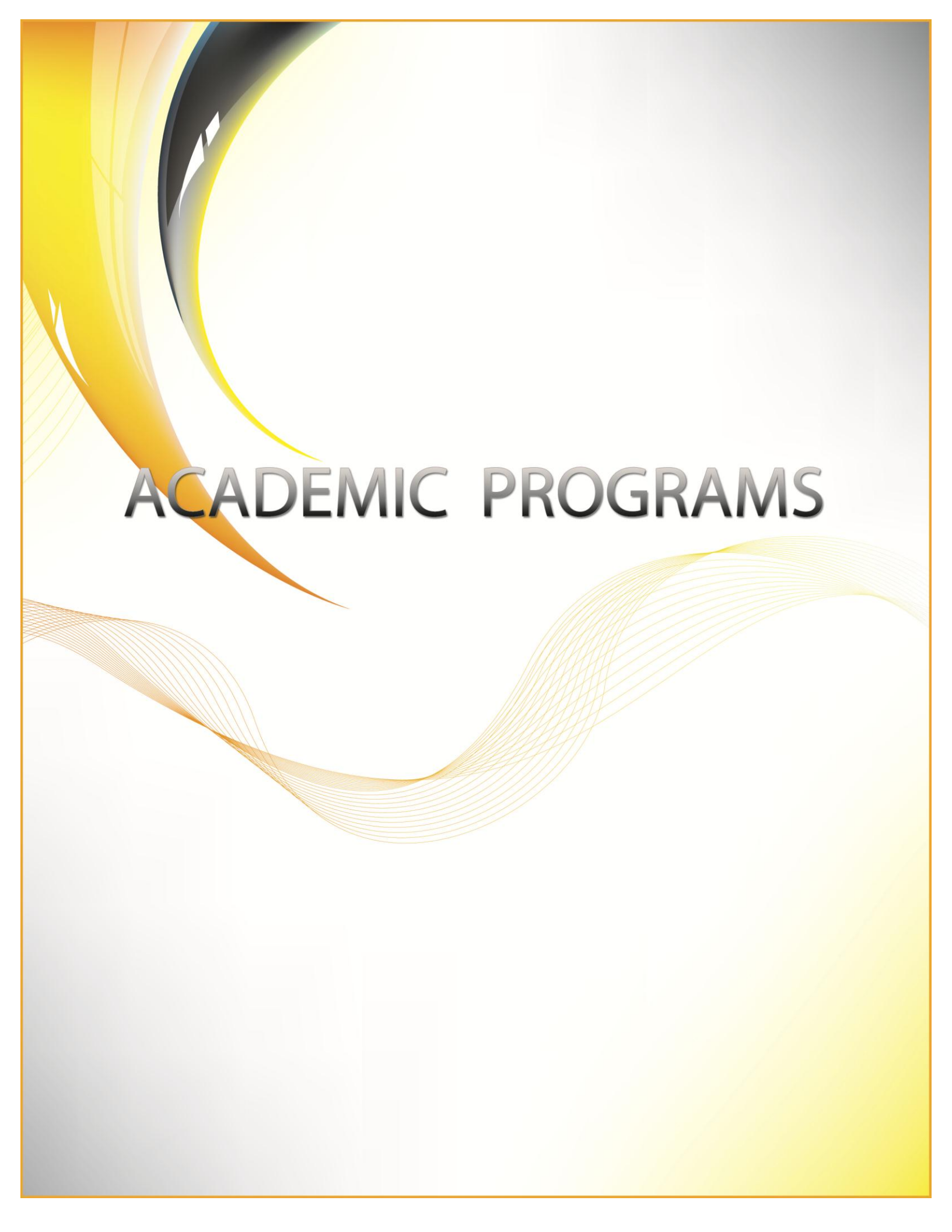
FORUM

FORUM is an interdisciplinary academic review specially dedicated to publishing the works of the Institution's faculty. It aims to stimulate research and artistic creation and intends to serve as a trustworthy source of information and as a testimonial to the educational services for our people. As an academic review it allows for the divulgation of information, validates the creative works of the faculty and fosters the discussion of findings and academic research.

FORUM is a university space offered to our community to foster all scientific and creative endeavors. It aims to foster the intellectual growth of our faculty, colleagues and friends who want to publish in a peer reviewed publication. The journal's website can be found at <http://forum.upra.edu>

REFLEJOS

Reflejos is the result of an initiative of the Nursing Department's faculty, to share with the rest of the university community knowledge, literary and departmental activities generated in this department. Currently, four volumes have been published. The review has articles on health, the environment and social activities. *Reflejos* allows the faculty and students of the Nursing Department to be integrated to the external community.



ACADEMIC PROGRAMS

ACADEMIC PROGRAMS

There are three types of academic programs in the University of Puerto Rico at Arecibo.

1. Bachelor's degrees
2. Associate's degrees
3. Articulated Transfer Programs

BACHELOR'S DEGREE PROGRAMS

The following four-year bachelor's degree programs are offered in UPRA:

- Arts in Education with a major in Physical Education for Elementary School
- Arts in Elementary Education
- Science Biology with a major in Microbial Technology
- Business Administration with major in:
 - Accounting
 - Finance
 - Management
 - Marketing
- Computer Science
- Nursing
- Office Systems
- Social Science
 - Major in Ibero-American Studies
 - Major in Industrial Organizational Psychology
- Television and Radio Communications
- Technology in Industrial Chemical Processes

ASSOCIATE DEGREE PROGRAMS

The Associate Degree Programs provide students with the opportunity to complete a two year program that prepares them for immediate employment. Students may apply for admission to a bachelor's degree program in UPRA or another branch of the UPR.

UPRA offers the following Associate Degree programs:

- Biotechnology Operations (GAOB)
- Chemical Engineering Technology
- Nursing
- Veterinary Technology

ARTICULATED TRANSFER PROGRAMS

The University of Puerto Rico at Arecibo offers the following two year articulated programs. These programs allow students to begin their academic careers in UPRA and later transfer to another unit of the UPR System to complete their bachelor's degree along with their respective majors.

Students are responsible of verifying the curricular sequence or the requisites of the academic programs have been changed.

ARTICULATED TRANSFER PROGRAMS TO UPR-MAYAGÜEZ

- **Engineering**
 - Chemical Engineering
 - Civil Engineering
 - Computer Engineering
 - Electrical Engineering
 - Industrial Engineering
 - Land Surveying and Topography
 - Mechanical Engineering
- **Mathematics**
 - Education in Mathematics
 - Pure Mathematics
 - Science with major in Computational Mathematics
 - Computing Science

ARTICULATED TRANSFER PROGRAMS TO UPR-RÍO PIEDRAS

- Anthropology
- Chemistry
- Cooperativism
- Drama/Theatre
- Economics
- Elementary Education in Teaching of English to Speakers of Spanish
- English
- Family Ecology
- Geography
- Hispanic Studies

- History of Art
- History of the Americas
- Mathematics
- Philosophy
- Physics
- Political Science
- Science-General
- Secondary Education
- Social Sciences - General
- Sociology
- Teaching of English to Speakers of Spanish

ARTICULATED TRANSFER PROGRAMS TO UPR- CAYEY

- History
- Humanities
- Natural Sciences
- Psychology
- Psychology and Community Mental Health
- Secondary Education
 - History
 - Natural Sciences
- Social Sciences
- Sociology

COURSES OFFERED BY THE ACADEMIC DEPARTMENTS

BIOLOGY

BIOL – Biology
 CIBI – Biological Sciences
 CIIN – Integrated Science
 SAAN – Animal Health

BUSINESS ADMINISTRATION

ADMI – Administration
 BASE – Banking and Insurance
 CONT – Accounting

DEME – Business Law
ECON – Economics
ESTA – Statistics
FINA – Finance
GERP – Production Management
MERC – Marketing
REHU – Human Relations

COMPUTER SCIENCE

CCOM – Computer Science
SICI – Computerized Information Systems

EDUCATION

EDES – Special Education
EDFI – Physical Education
EDFU – Fundamentals of Education
EDPE – Programs and Teaching Education
TEED – Educational Technology

ENGLISH

INCO – Business English
INGL – English

HUMANITIES

ARTE – Art
ESIN – Puerto Rican Studies
FILO – Philosophy
FRAN – French
HIST – History
HUMA – Humanities
INDT – Feminist Writing
MUSI – Music
LITE – Literature
TEAT – Theater

MATHEMATICS

MATE – Mathematics

NURSING

ENFE – Nursing

OFFICE SYSTEMS

SOFI – Office Systems

PHYSICS AND CHEMISTRY

ASTR – Astronomy

CIFI – Physical Science

FISI – Physics

INCI – Civil Engineering

INEL – Electrical Engineering

INGE – General Engineering

QUIM – Chemistry

TEQU – Chemical Engineering Technology

SOCIAL SCIENCE

ANTR – Anthropology

CIPO – Political Science

CISO – Social Sciences

ECON – Economics

ESIN – Latin American Studies

GEOG – Geography

GERO – Gerontology

HIST – History

PSIC – Psychology

SOCI – Sociology

SPANISH

ESCO – Business Spanish

ESPA – Spanish

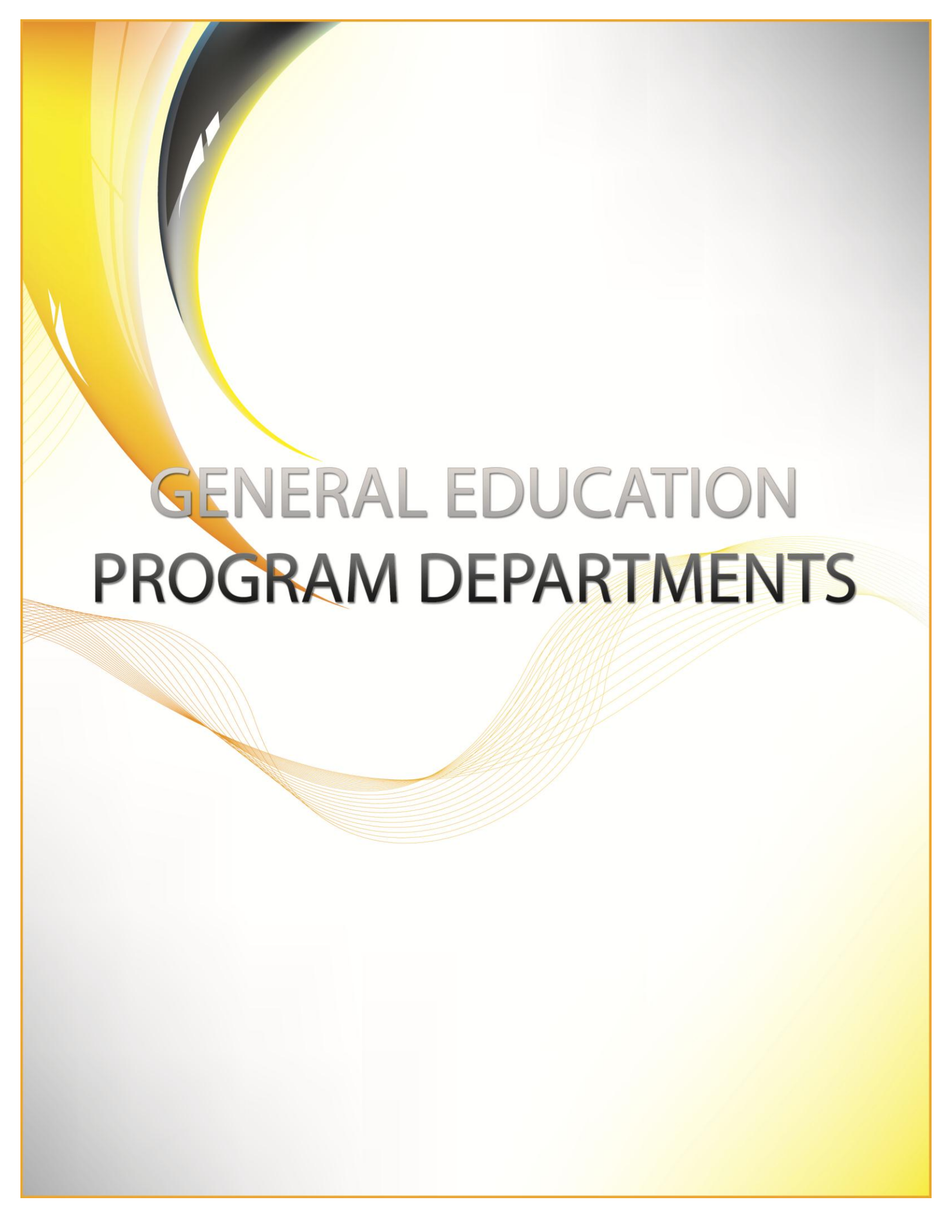
LITE – Literature

TECHNOLOGY IN TELEVISION AND RADIO COMMUNICATIONS

AGRA – Graphic Arts

COMU – Communications

PUCO – Commercial Advertising



GENERAL EDUCATION PROGRAM DEPARTMENTS

GENERAL EDUCATION PROGRAM

UPRA has an Institutional General Education Policy of the University of Puerto Rico at Arecibo (Certification Number 2005-06-17 of UPRA Academic Senate). This policy defines the minimum course component of General Education courses through which the institution fosters the development of skills and knowledge of students in the following areas: oral and written communication in Spanish and English, Quantitative and Scientific Reasoning, logical and critical reasoning, information skills (search, handling, and evaluation of information in traditional and technological sources), collaborative work, historical and sociocultural knowledge, environmental awareness, ethical values, moral and spiritual, aesthetic and cultural values and the knowledge of oneself.

Beginning in 2008-2009 all students enrolled in bachelor's degree programs have to take a minimum number of courses in General Education.

MINIMUM EDUCATION REQUIREMENTS

COURSES	CREDITS
English	9
Humanities	6
Mathematics	6
Natural Sciences	6
Social Sciences	6
Spanish	9
TOTAL	42

SPANISH

All students will take 6 credits in a first-year Spanish course. The course will depend on their score in the Spanish section of the College Entrance Examination Board (CEEB) Examination. Developmental Spanish courses will not count towards meeting this requirement.

COURSE	CODE	CREDITS
Basic Spanish I	ESPA 3101	3
Basic Spanish II	ESPA 3102*	3
Honor's Spanish I CEEB: 600-800	ESPA 3111	3
Honor's Spanish II	ESPA 3112*	3

To comply with the **additional three (3) credits** required for General Education, students will choose from among the following courses. Some curricula already require additional courses in Spanish which fulfill this requirement. Students should consult their academic advisors and examine the curricular sequence for the program in which they are enrolled.

COURSE	CODE	CREDITS
Psychology of Communication I	ESCO 3001	3
Psychology of Communication II	ESCO 3002	3
Oral Communication	ESPA 3007	3
Writing and Style	ESPA 3208	3
Business Expression and Communication	ESPA 3215	3
Introduction to Spanish Grammar	ESPA 3290	3
Introduction to Spanish Literature I	ESPA 3211	3
Introduction to Spanish Literature II	ESPA 3212	3
Film and Literature	ESPA3305	3
Latin American Literature I	ESPA 4221	3
Latin American Literature II	ESPA 4222	3
Puerto Rican Literature I	ESPA 4231	3
Puerto Rican Literature II	ESPA 4232	3
Contemporary Puerto Rican Literature	ESPA 4233	3
Compendium of Puerto Rican Literature	ESPA 4267	3
Other second year language or literature courses		

**Courses bearing an asterisk have prerequisites.*

ENGLISH

All students will take 6 credits in a first-year English course. The course will depend on their score in the English achievement section of the College Entrance Examination Board (CEEB). Developmental English courses will not count towards meeting this requirement.

COURSE	CODE	CREDITS
Basic English I	INGL 3101	3
Basic English Lab. I (co-requisite of INGL 3101)	INGL 3113	3
Basic English II	INGL 3102*	3
Basic English Lab. II (co-requisite of INGL 3102)	INGL 3114	3
Intermediate English I (CEEB: 580-679)	INGL 3103	3
Intermediate English II	INGL 3104*	3

COURSE	CODE	CREDITS
Honor's English I (CEEB: 680-800)	INGL 3011	3
Honor's English II	INGL 3012*	3

To comply with **the additional three (3) credits in English** required for General Education, students will choose from among the following courses. Some curricula already require additional courses in English which fulfill this requirement. Students should consult their academic advisors and examine the curricular sequence for the program in which they are enrolled.

COURSE	CODE	CREDITS
Business English I	INCO 3005	3
Business English II	INCO 3006*	3
Report Writing	INCO 4006	3
Advanced Course in Business Communication	INCO 3007	4
Oral and Written English I	INGL 3021	3
Grammar and Composition I	INGL 3201	3
Grammar and Composition II	INGL 3202*	3
Introduction to Literature I	INGL 3221	3
Introduction to Literature II	INGL 3222*	3
Conversational English	INGL 3093	3
Conversational English for Professionals II	INGL 3094*	3
English for Public Communication	INGL 3061	3
English for Science and Technology I	INGL 3015	3
Conversational English for Secretaries I	INCO 3025	1
Introduction to Creative Writing	INGL 3238	3
Other language or literature courses		

**Courses bearing an asterisk have prerequisites.*

HUMANITIES

Students will take at least six (6) credits in the Humanities from among the following courses. Some curricula already require courses in Humanities which fulfill this requirement. Students should consult their academic advisors and examine the curricular sequence for the program in which they are enrolled. Los cursos ARTE 3125, 3135 y 3816; MUSI 3175 y 3176; y TEAT 3011, 3012, 3030 y 3160 are not a General Education component. These courses may be taken as free electives.

DISCIPLINE	COURSE	CODE	CREDITS
ART	Art Appreciation	ARTE 3115	2
	History of Art	ARTE 3116	3
	Art in Puerto Rico	ARTE 3118	3
HISTORY	History of Puerto Rico I	HIST 3241	3
	History of Puerto Rico II	HIST 3242	3
	History of the Renaissance	HIST 3165	3
	History of the United States I	HIST 3111	3
	History of the United States II	HIST 3112	3
	Seminar of Puerto Rican Studies	ESIN 4001	3
	Social and Cultural History of Puerto Rico	HIST 3177	3
	Social and Cultural History of the U.S.	HIST 3179	3
HUMANITIES	Western Civilization I	HUMA 3101	3
	Western Civilization II	HUMA 3102	3
	Western Civilization III	HUMA 3201	3
	Western Civilization IV	HUMA 3202	3
MUSIC	History of Music	MUSI 3225	3
	Music Appreciation	MUSI 3235	2
DRAMA	Introduction to Drama	TEAT 3025	3
PHILOSOPHY	Introduction to Philosophy I	FILO 3001	3
	Introduction to Philosophy II	FILO 3002	3
	Ethics	FILO 3005	3
	Logic	FILO 4006	3
	Bioethics	FILO 4027	3

DISCIPLINE	COURSE	CODE	CREDITS
LITERATURE	Modern Literature	LITE 3011	3
	Contemporary Literature	LITE 3012	3
	Mythology in Western Literature	LITE 3035	3
	Feminist Writings	INTD 3046	3

MATHEMATICS

All students will take 6 credits in Mathematics. The course will depend on the program in which students are enrolled. MATE 3171 (Pre-Calculus I) and Quantitative Methods I (MATE 3011) require a minimum score of 650 in the Math Achievement of the CEEB Exam, except for students of the Bachelor's degree of Technology in Industrial Chemical Processes. Students who do not have this score, may fulfill the requirement by passing MATE 0008 (Development of Basic Mathematical Skills).

Students whose curriculum only requires three (3) credits in Math, may fulfill the General Education requirement by taking one of the following courses:

COURSE	CODE	CREDITS
Introductory Mathematics I	MATE 3001	3
Introductory Mathematics II	MATE 3002	3
Algebra	MATE 3004	3
Health Related Mathematics	MATE 3035	3
Quantitative Methods I	MATE 3011	3
Quantitative Methods II	MATE 3012	3
Statistics with Computers	MATE 3026	3
Geometry for Elementary School Teachers	MATE 4105	3
Elementary Statistics	MATE 3015	3
Introduction to Mathematics I	MATE 3041	3
Introduction to Mathematics II	MATE 3042	3
Appreciation of Mathematics	MATE 3105	3
Pre-Calculus I	MATE 3171	3
Pre-Calculus II	MATE 3172	3

NATURAL SCIENCES

Students will take at least six (6) credits in the Natural Sciences from among the following courses. Some curricula already require courses in Science which fulfill this requirement. Students should consult their academic advisors and examine the curricular sequence for the program in which they are enrolled.

DEPARTMENT OF BIOLOGY

COURSE	CODE	CREDITS
Basic Topics in Biology	BIOL 3008	3
General Biology I	BIOL 3011	4
General Biology I Lab. (co-requisite of BIOL 3011)	BIOL 3013	0
General Biology II	BIOL 3012*	4
General Biology II Lab. (co-requisite of BIOL 3012)	BIOL 3014	0
Foundations of General Biology	BIOL 4001	4
Foundations of General Biology Lab. (co-requisite of BIOL 4001)	BIOL 4002	0
Foundations of Biology I	CIBI 3001	3
Foundations of Biology II	CIBI 3002*	3
Integrated Science I	CIIN 1001	3
Lab. for Integrated Science	CIIN 1002	1
Integrated Science II	CIIN 1003*	1
Lab. for Integrated Science II	CIIN 1004	3

DEPARTMENT OF PHYSICS-CHEMISTRY

COURSE	CODE	CREDITS
Descriptive Astronomy	ASTR 3005	
General Chemistry I	QUIM 3001	4
General Chemistry Lab. I (co-requisite of QUIM 3001)	QUIM 3003	0
General Chemistry II	QUIM 3002*	4
General Chemistry Lab. II (co-requisite of QUIM 3002)	QUIM 3004*	0
Introduction to Physical Sciences I	CIFI 3001	3
Introduction to Physical Sciences II	CIFI 3002*	3

**Courses bearing an asterisk have prerequisites.*

SOCIAL SCIENCES

Students will choose one of the following courses as part of their six (6) credit General Education requirement. ⁴:

COURSE	CODE	CREDITS
Introduction to Social Sciences I	CISO 3121	3
Introduction to Social Sciences II	CISO 3122	3
Introduction to Social Sciences I –Honor's Program ⁵	CISO 3131	3
Introduction to Social Sciences II – Honor's Program	CISO 3132	3

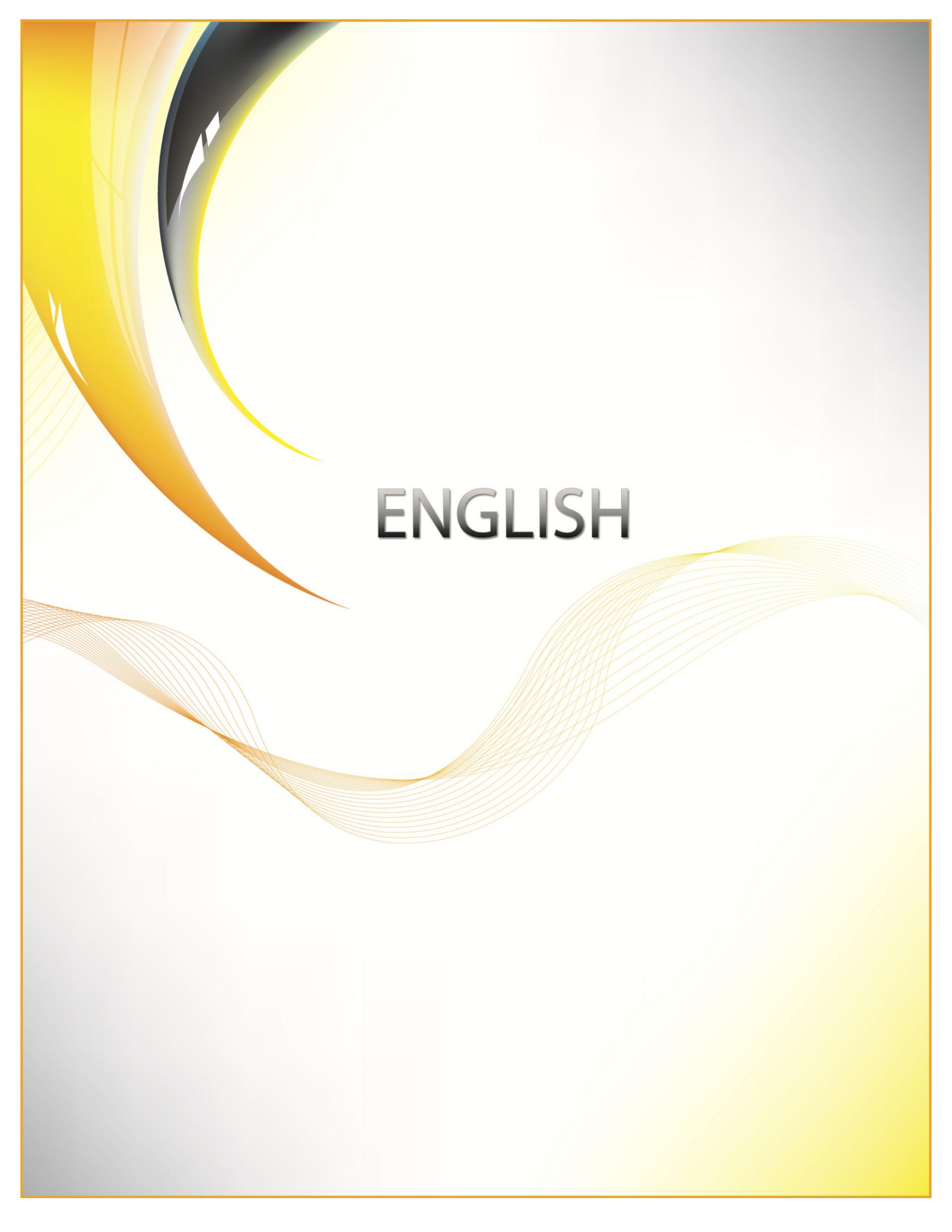
To complete the additional three (3) credits, students may choose from among the following courses. Some curricula already require additional courses in Social Science which fulfill this requirement. Students should consult their academic advisors and examine the curricular sequence for the program in which they are enrolled.

COURSE	CODE	CREDITS
Introduction to Economics I	ECON 3005	3
Principles of Economics II	ECON 3022	3
Elements of Geography	GEOG 3155	3
Statistical Reasoning	CISO 3155	3
Sociocultural Anthropology	ANTR 3006	3
Principles of Sociology	SOCI 3245	3
Principles and Problems of Political Science	CIPO 3011	3
Introduction to Psychology	PSIC 3003	4
General Psychology	PSIC 3005	3
Industrial Psychology	PSIC 3116	3
Social Psychology	PSIC 3006	3
Group Dynamics	PSIC 3048	3
Sociological Bases of Environmental Education	SOCI 1001	3

⁴ Students in the Industrial Organizational Psychology and Iberoamerican Studies fulfill their requirements by taking more specialized courses in Social Science.

⁵ Reserved for students in the Honor's Program





ENGLISH

ENGLISH DEPARMENT

FACULTY

Jane Alberdeston Coralín, Ph.D., *Assistant Professor*, Doctor of Philosophy in English Literature, Binghamton University (SUNY).

Mateo Garcés Valencia, Ed.D., *Assistant Professor*, Doctor of Education, Curriculum and Teaching TESOL, Universidad de Puerto Rico, Río Piedras, M.A., Master of Arts, Education in TESOL, (Teaching English as a Second Language), Universidad de Puerto Rico.

Carlos González Méndez, Ed.D., *Assistant Professor*, Doctor of Education, Curriculum and Teaching TESOL, Universidad de Puerto Rico, Río Piedras, M.A.; Master of Arts, Education in TESOL (Teaching English as a Second Language), Universidad de Puerto Rico, Río Piedras.

Elsa Luciano Feal, Ph.D., *Full Professor*, Doctor of English Literature and Caribbean Studies, Universidad de Puerto Rico; Río Piedras.

Priscilla Morales Cruz, M.A., *Assistant Professor*, Master of Arts, Education in TESOL (Teaching English as a Second Language), Universidad de Puerto Rico.

Jesús Ramírez Morales, M.A.E.E., *Assistant Professor*, Ph.D. Candidate of Philosophy in English with specialization in Linguistics of the English Speaking Caribbean (ABD), Universidad de Puerto Rico en Río Piedras Master of Arts, Education in English, Linguistics and Literature, Universidad de Puerto Rico, Mayagüez.

Nelson Rivera Agosto, M.A., *Assistant Professor*, Master of Arts, English Literature, Universidad de Puerto Rico, Río Piedras.

Marisol Santiago Pérez, M.A., *Associate Professor*, Ph.D. Candidate of Philosophy in English with specialization in Linguistics of the English Speaking Caribbean (ABD), Universidad de Puerto Rico en Río Piedras, Master of Arts, Linguistics, Universidad de Puerto Rico.

Geissa Torres Santiago, Ph.D., *Instructor*, Doctor of Philosophy in English with specialization in Linguistics of the English Speaking Caribbean, Universidad de Puerto Rico en Río Piedras.

LIST OF COURSES

INGL

INGL 3011: HONORS ENGLISH I, three (3) credits, three (3) contact hours per week. **Pre-requisite:** A score of more than 690 in the English Achievement section of the CEEB. This course is designed for students who possess a higher command of the English language. It replaces INGL 3101 or 3103. The course presents a vision of various literary genres such as fiction, poetry, short story, through readings, films, reviews, song and poems. The works presented are drawn from a variety of sources such as magazines, newspapers, journals, interviews, video-conferences and the web. Students will prepare their written work in the Writing Laboratory where they will have access to computers and web-based research and writing tools.

INGL 3012: HONORS ENGLISH II, three (3) credits, three (3) contact hours per week. **Pre-requisite:** INGL 3011. This course may be substituted for INGL 3102 or 3104. Other literary genres such as non-fiction and drama will be studied. These genres are presented through films, review, songs and poems. Works presented are taken from various sources such as journals, newspapers, magazines, interview, video-lectures and internet. Writing assignments will be prepared in the Writing Classroom where students will have access to computers for their writing and their research.

INGL 3015: ENGLISH FOR SCIENCE AND TECHNOLOGY; three (3) credits, three (3) contact hours per week. **Pre-requisite:** INGL 3101-3102, INGL 3103-3104 or INGL 3011-3012. This course is designed to help students enrolled in technological and scientific programs develop English skills and vocabulary to help them in their areas of study.

INGL 3061: ORAL AND WRITTEN ENGLISH FOR PUBLIC COMMUNICATION I, three (3) credits, three (3) contact hours per week. **Pre-requisite:** INGL 3101, INGL 3102. Offered to a limited number of students of public communication. The course teaches students to speak and write clearly and effectively, utilizing an oral and written communication approach and a program of laboratory experiences.

INGL 3093: CONVERSATIONAL ENGLISH, three (3) credits, three (3) contact hours per week. **Pre-requisite:** INGL 3092 or its equivalent. Practice to develop the skills for vocabulary acquisition. The class is held completely in English.

INGL 3094: CONVERSATIONAL ENGLISH FOR PROFESSIONALS, three (3) credits, three (3) contact hours per week. The course is designed to improve oral expression and to increase vocabulary through reading and discussion of literary and technical texts. This course will assist in the interpretation of English textbooks.

INGL 3101: BASIC ENGLISH I, three (3) credits, three (3) contact hours per week. It is an intensive course in grammar, sentence writing, pronunciation, conversation, reading comprehension and vocabulary building. The skills developed in class will be reinforced orally in the language lab.

INGL 3102: BASIC ENGLISH II, three (3) credits, three (3) contact hours per week. Pre-requisite: INGL 3101. This is the continuation of INGL 3101.

INGL 3103: INTERMEDIATE ENGLISH I, three (3) credits, three (3) contact hours per week. This course is designed for students who score 581-690 on the English sub-test of the CEEB and who have the permission of the English Department chairperson. Oral and written communication is stressed as well as the reading and analysis of essays and short stories.

INGL 3104: INTERMEDIATE ENGLISH II, three (3) credits, three (3) contact hours per week. Pre-requisite: INGL 3103. This is the continuation of INGL 3103 with emphasis on the analysis of the short story, and practice in research techniques.

INGL 3113: ORAL PRACTICE FOR BASIC ENGLISH I, zero (0) credits, one (1) contact hour per week. Laboratory for INGL 3101.

INGL 3114: ORAL PRACTICE FOR BASIC ENGLISH II, zero (0) credits, one (1) contact hour per week. Laboratory for INGL 3102.

INGL 3117: CONVERSATIONAL ENGLISH FOR STUDY AND TRAVEL, three (3) credits, three (3) contact hours per week. Pre-requisite: INGL 3102 or INGL 3101 or INGL 3012. Designed for student who will be traveling to and studying in English-speaking country. Students will engage in communicative activities such as role-playing, dialogues, speeches, oral reports and essays, interviews, simulations, etc. The environment will serve as a living laboratory where students will apply the skills learned in spontaneous situations at shopping malls, restaurants, offices on campus, transportation systems, amusement parks, museums, theaters, sports events and activities, etc. Emphasis on pronunciation, vocabulary development, and problem-solving techniques that are needed to communicate effectively in English.

INGL 3021. ORAL AND WRITTEN ENGLISH I. Three (3) credits, three (3) lecture and laboratory hours per week. Prerequisites: INGL-3102 or INGL 3104 or INGL 3112. Course designed for future elementary school teachers who have to teach all classes in the curriculum including English. The student learns the language sounds, identification and sound production, accentuation, rhythm, and intonation. Student will have practice in the laboratory in order to correct individual difficulties.

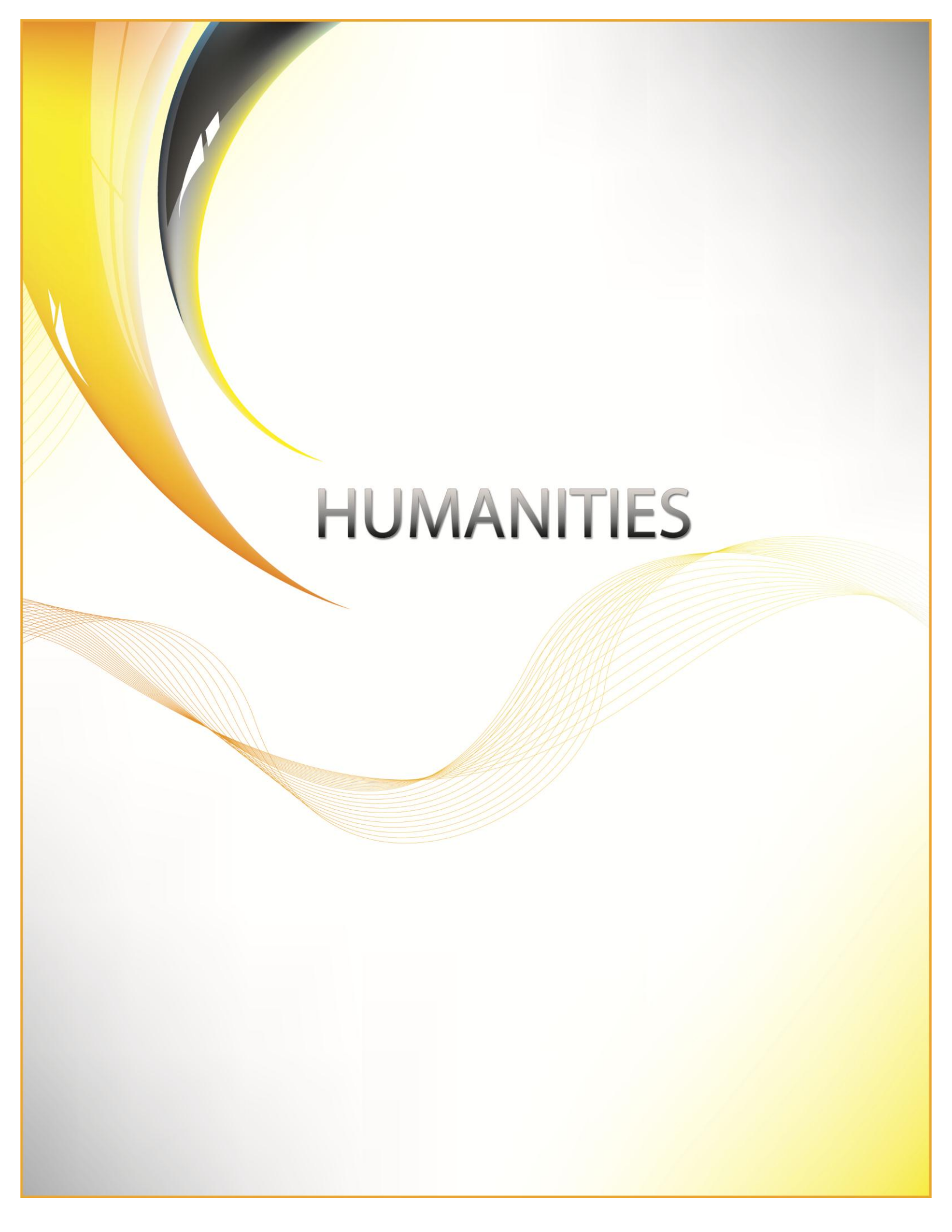
INGL 3201: GRAMMAR, COMPOSITION AND READING I, three (3) credits, three (3) contact hours per week. Pre-requisite: INGL 3102. This course consists of the study of advanced grammatical techniques. It includes emphasis on compositions based on careful analysis of selected readings.

INGL 3202: GRAMMAR, COMPOSITION AND READING II, three (3) credits, three (3) contact hours per week. Pre-requisite: INGL 3201. Continuation of INGL 3201, with an introduction to outlining and research techniques.

INGL 3221: INTRODUCTION TO LITERATURE I, three (3) credits, three (3) contact hours per week. Pre-requisites: INGL 3102, INGL 3104. Analysis and appreciation of the short story and essay. Oral and written practice of developed themes, taking into consideration the literary genres mentioned.

INGL 3222: INTRODUCTION TO LITERATURE II, three (3) credits, three (3) contact hours per week. Pre-requisite: INGL 3221. Continuation of INGL 3221. Analysis and appreciation of poetry, drama and the novel.

INGL 3238: INTRODUCTION TO CREATIVE WRITING, three (3) credits, three (3) contact hours per week. Theory and practice of the creation of fiction, poetry and drama. Detailed in-class criticism of student papers.



HUMANITIES

HUMANITIES DEPARTMENT

FACULTY

José Alberty Monroig, Ph.D., *Associate Professor*, Doctor of Philosophy, History of Puerto Rico and the Caribbean, Universidad de Puerto Rico.

Ivette Aponte Santiago, Ph.D., *Associate Professor*, Doctor of Philosophy, History of Puerto Rico and the Caribbean, Centro de Estudios Avanzados de Puerto Rico y el Caribe.

Sandra C., Barreras del Río, M.A., *Assistant Professor*, Master in Philosophy, Universidad de Puerto Rico, Recinto de Río Piedras, Ph. Candidate, Centro de Estudios Avanzados de Puerto Rico y el Caribe.

José R Colón Fuentes, Ph.D., *Assistant Professor*, Doctor of Latin American Literature, Wisconsin Madison University.

María M Flores Collazo, Ph.D., *Assistant Professor*, Doctor of Philosophy and Letters, History, Universidad de Puerto Rico, Recinto de Río Piedras, Posdoctorate in Cultural Policies, Universidad Autónoma Metropolitana, Iztapalapa, México, D.F.,

Wanda Delgado Rodríguez, Ph.D., *Associate Professor*, Doctor of Philosophy, Puerto Rican and Caribbean Literature, Centro de Estudios Avanzados de Puerto Rico y el Caribe. Certification on Applied Linguistic to the Teaching of Spanish as Native Language.

Luis González Pérez, M.A., *Associate Professor*, Master of Arts, Philosophy, Universidad de Puerto Rico; Doctoral Candidate in Philosophy, Universidad de Valladolid, España.

Elvin González Sierra, Ph.D., *Associate Professor*, Art and History of Art, Universidad de Córdoba, España.

Fernando Medina Carrillo, M.A., *Assistant Professor*, Master of Arts, History, Universidad de Puerto Rico.



LIST OF COURSES

LIST OF COURSES

ART

ARTE 3115: ART APPRECIATION, two (2) credits, two (2) lecture hours per week. Develops the necessary criteria to understand the general principles of art. Color as a source of aesthetic (artistic) pleasure. Art in the home and the community. Presentation of art collections from famous museums. Guided tours to museums and exhibitions, and workshops.

ARTE 3116: HISTORY OF ART (COMPENDIUM), three (3) credits, three (3) lecture hours per week. The art process seen within the total historical context, emphasizing the understanding of contemporary art. A chronological order is followed in order to facilitate the study of such a large compendium.

ARTE 3118: PUERTO RICAN ART, three (3) credits, three (3) lecture hours per week. The study of the plastic arts since Pre-Columbian times to the present, considering the artistic expressions in architecture, sculpture, painting, graphic arts, movies, photography and popular arts.

ARTE 3125: DRAWING I: three (3) credits, three (3) lecture hours per week. Elements of drawing and composition using still-life of the human figure as a starting point.

ARTE 3135: BASIC PAINTING, three (3) credits, four (4) contact hours per week. Introduction to the basic elements of painting and the principles of composition using oleo and acrylics. Free styles and themes.

ARTE 3816: PROCESS OF PAINTING I: MATERIALS AND TECHNIQUES OF EASEL PAINTING; three (3) credits, four and a half hours per week in the atelier. Pre-requisites: ARTE 3815 or ARTE 3135. An intermediate course which explores the technical possibilities and the materials proper to easel painting.

ESIN

ESIN 4001: SEMINAR OF PUERTO RICAN STUDIES, three (3) credits, three (3) lecture hours per week. Study the development of Puerto Rican culture. It gives special attention to the artistic, philosophical and literary thought, from the second half of the 19th century to the 20th century. It is a research course.

FILO

FILO 3001: INTRODUCTION TO PHILOSOPHY I, three (3) credits, three (3) contact hours per week. Study and analysis of the most important philosophical problems throughout the course of its historical development. Problems in epistemology, metaphysics, ethics and philosophical anthropology are emphasized. Special attention is given to the classical Greek period and the beginning of philosophical thought in the Middle Ages.

FILO 3002: INTRODUCTION TO PHILOSOPHY II, three (3) credits, three (3) contact hours per week. Pre-requisite: FILO 3001. Study and analysis of the most important problems in philosophy from the Renaissance on. Special attention is given to modern philosophical thoughts. Rationalism, empiricism, idealism. The relationship between modern philosophy and natural science is emphasized.

FILO 3005: ETHICS, three (3) credits, three (3) lecture hours per week. Pre-requisite: HUMA 3102. Introduction to the criteria and principles on which human behavior and the criteria for differentiating ethics from moral experiences are founded. Based on this analysis, different ethical theories which have appeared throughout history will be discussed.

FILO 4006: LOGIC I, three (3) credits, three (3) lecture hours per week. A study of the principles and methods of reasoning in classical and modern logic. The term, categorical propositions and categorical syllogisms; propositional calculus or corrective logic and the quantification theory or operational logic.

FILO 4027: BIOETHICS, three (3) credits, three (3) lecture hours per week. Moral problems related to biological research and technology.

FRAN

FRAN 3191: BASIC FRENCH I, four (4) credits, three (3) lecture hours per week, one (1) hour laboratory. With the desire to accomplish the learning of this language at an adult level, an accelerated course, based on basic or fundamental French, has been designed. It does not exceed that which can be assimilated in a year's work. The main interest is to familiarize the student with the grammar indispensable to understand and make him/herself understood in French, whether orally or in writing.

FRAN 3192: BASIC FRENCH II, four (4) credits, three (3) lecture hours per week, one (1) hour laboratory. Pre-requisite: FRAN 3191. Continuation of the previous course.

FRAN 3193: FRENCH I LABORATORY, zero (0) credits, one (1) hour per week. Co-requisite: FRAN 3191. Laboratory for the Basic French I course.

FRAN 3194: FRENCH II LABORATORY, zero (0) credits, one (1) hour per week. Co-requisite: FRAN 3192. Laboratory for the Basic French II course.

FRAN 3801: FRENCH AS A RESEARCH TOOL I, three (3) credits, three (3) lecture hours per week. Special attention to reading and translating various texts in French for the purpose of research in the Honors Program.

FRAN 3802: FRENCH AS A RESEARCH TOOL II, three (3) credits, three (3) lecture hours per week. Pre-requisite: FRAN 3801. Special attention to reading and translating various texts in French for the purpose of research in the Honors Program. A continuation of **FRAN 3801**.

HIST

HIST 3111: HISTORY OF THE UNITED STATES FROM THE COLONIAL PERIOD TO THE CIVIL WAR, three (3) credits, three (3) lecture hours per week. The history of the United States of America from the colonial period to the Civil War. The social, political and cultural development will be studied for the purpose of understanding the American Revolution, the founding of the Republic, its rapid growth in the 19th Century, and the events which culminated in the Civil War of 1861.

HIST 3112: HISTORY OF THE UNITED STATES AFTER THE CIVIL WAR TO THE PRESENT, three (3) credits, three (3) lecture hours per week. History of the United States after de Civil War to the present.

HIST 3115: COMPENDIUM OF THE HISTORY OF THE UNITED STATES, three (3) credits, three (3) lecture hours per week. Study of the history of the United States from the time of its independence to the present.

HIST 3165: HISTORY OF THE RENAISSANCE, three (3) credits, three (3) lecture hours per week. A study of the Renaissance as the threshold to modern civilization in its social, political, economic and cultural aspects; the religious crisis that arises in the 16th century until the Westphalia Peace Treaty, and from there on the manifestation of the two great trends of modern civilization; the absolutist monarchy exemplified in France and the English model; the parliamentary system; and the intellectual European revolution until the 18th century.

HIST 3177: HISTORY OF PUERTO RICO, three (3) credits, three (3) lecture hours per week. A study of the Puerto Rican social and cultural history from colonial times to the present. The historical journey will be studied with the purpose of understanding the idiosyncrasy and culture of Puerto Ricans and the transformations in all spheres from their

social and national lives.

HIST 3179: HISTORY OF THE UNITED STATES, three (3) credits, three (3) lecture hours per week. Study of the History of the United States of America from colonial times to the present. The social and cultural development will be studied with the purpose of understanding the processes which defined the idiosyncrasy and culture of their social and national lives.

HIST 3205: PROBLEMS OF THE CONTEMPORARY WORLD, three (3) credits, three (3) lecture hours per week. The intention of the course is to show the remote origins of the principal problems and conflicts of present history. Thus, for example, we study the mechanisms of sub-development in the Palestinian-Israeli conflict, the great revolutions, the Cold War, etc. Knowing the impossibility of studying the interminable list of contemporary problems, the course focuses on the clarification of concepts, and in the development of a vision that will overcome the episodic and periodic conception of contemporary conflicts.

HIST 3241: HISTORY OF PUERTO RICO I, three (3) credits, three (3) lecture hours per week. Basic elements of geography and geology of Puerto Rico, indigenous culture, discovery, conquest, colonization, institution, European attacks, economy, contraband, chroniclers, liberalism and absolutism.

HIST 3242: HISTORY OF PUERTO RICO II, three (3) credits, three (3) lecture hours per week. Governors, the Grito de Lares, slavery and abolitionism, journeyman notebooks, education, literature, journalism, political parties, the Depression, Operation Bootstraps, urbanism, and emigration.

HIST 3245: COMPENDIUM OF THE HISTORY OF PUERTO RICO, three (3) credits, three (3) contact hours per week. A synthesis of the History of Puerto Rico course (HIST 3241 and 3242). Historic evaluation of Puerto Rico. Its discovery in the 15th Century; colonization in the 16th and 17th; study of cultural reformation in the 18th; the shaping of its personality in the 19th and the present problems, starting from 1898 to the present.

HIST 4165: HISTORY OF BRAZIL, three (3) credits, three (3) contact hours per week. The course begins with the process of discovery and colonization. The cultural formation and its economic and political development are analyzed throughout the Colonial economic and political development are analyzed throughout the Colonial period, the empire, to the present. Socio-political differences of Brazil from the rest of Latin America are given special attention.

HIST 4215: HISTORY OF AFRICA, three (3) credits, three (3) contact hours per week. Historical panorama of the Negroid cultures of Sub-Saharan Africa, giving special attention

to Occidental Africa, a region with close ties to Latin America.

HIST 4355: AFRIO-ANTILLEAN SOCIETIES, three (3) credits, three (3) contact hours per week. Introduction to the origins and development of African-Antillean societies.

HIST 4990: INTRODUCTION TO THE HISTORICAL STUDIES TOUR, three (3) credits, three (3) contact hours per week. Requires authorization from the professor or department chair. Preparatory course for the study tour, in which the student will get acquainted with the history and culture of the countries that will be visited.

HIST 4995: HISTORICAL STUDIES TOUR, three (3) credits, three (3) contact hours per week. Requires authorization from the professor or department chair. A study tour during the Summer to learn the history and culture of foreign countries.

HUMA

HUMA 3010: SUMMER IN EUROPE, six (6) credits. A trip to Europe is a practical and direct experience thru which a student can appreciate culture, geography, social organization and idiosyncrasy of the countries visited. This personal experience, together with the theory provided in the classroom, is of unquestionable value to the student in completing his or her intellectual formation. The offering is structured so that students receive a theoretical component before the trip which consists of mini-courses in foreign languages, at their functional level, evaluation of cultural videos, distribution and assessment of didactical materials. A practical component, the trip itself and the visits to museums, galleries, monuments and the final evaluations after returning back to school is also included.

HUMA 3101: WESTERN CULTURE I, three (3) credits, three (3) contact hours per week. A study of the most representative aspects of western culture, taking into consideration its Greek origins. The study is carried out by means of the critical analysis of literary, philosophical, artistic and religious classical works.

HUMA 3102: WESTERN CULTURE II, three (3) credits, three (3) contact hours per week. **Pre-requisite:** HUMA 3101. A study of the most representative aspects of western culture, taking into consideration its Roman and medieval origins. The study is carried out by means of the critical analysis of literary, philosophical, artistic and religious classical works.

HUMA 3201: WESTERN CULTURE III, three (3) credits, three (3) contact hours per week. **Pre-requisite:** HUMA 3102. The study of the development of the modern world, from the Renaissance period to the French Revolution. A critique of the ideas and problems raised by classical works representative of each period.

HUMA 3202: WESTERN CULTURE IV, three (3) credits, three (3) contact hours per week.
Pre-requisite: HUMA 3201. The study of modern man from the French Revolution to modern times. A critique of the ideas and problems raised by classical works representative of each period.

INTD

INTD 3046: FEMINIST WRITINGS, three (3) credits, three (3) contact hours per week. In the course, Feminist Writings, a body of literary works (writings) by women, stemming from theories derived from feminist writings (works), is analyzed. The debates over the influence of the genre on writing from a historic, semiotic and literary perspective is studied. Literary genres traditionally associated with feminist writings, such as the diary, autobiography, and testimony, will also be explored

LITE

LITE 3011: MODERN LITERATURE, three (3) credits, three (3) contact hours per week. An overview of the world literature that best represents the humanism, baroque and neo-classical periods. The literary genre and changes in traditional literature are emphasized.

LITE 3012: CONTEMPORARY LITERATURE, three (3) credits, three (3) contact hours per week. **Pre-requisite:** LITE 3011. An overview of the world literature that best represents the romantic, realist and surrealist periods. The literary genre and changes in traditional literature are emphasized.

LITE 3035: MYTHOLOGY IN WESTERN LITERATURE, three (3) credits, three (3) contact hours per week. Study of fundamental mythological themes of Greek, Roman, German and Celtic cultures, and its manifestations in Western literature.

MUSI

MUSI 3175: THEORY AND DICTATION I, MUSI 3225: three (3) credits, three (3) contact hours per week. Introductory course that studies the fundamentals of music theory of reading and intonation of dictation.

MUSI 3176: THEORY AND DICTATION II, MUSI 3225: three (3) credits, three (3) contact hours per week. A continuation of MUSI 3175.

MUSI 3225: THE HISTORY OF MUSIC, three (3) credits, three (3) contact hours per week. The course offers a panoramic view of the musical development in the West from Greek and Roman times to the present. Emphasis is placed on works of the great composers. These are

studied as part of the historical period in which they were created.

MUSI 3235: MUSIC APPRECIATION, two (2) credits, two (2) contact hours per week. This course offers students the opportunity to get know classical music and appreciate its aesthetic value. The different musical forms are studied: symphony, fugue, sonata, oratorio and the opera. Students are taught how to distinguish between classical and folkloric music.

TEAT

TEAT 3011: STAGE ACTING I, two (2) credits, three (3) contact hours per week. The fundamental techniques of stage acting. Includes one hour of lecture and two of laboratory.

TEAT 3012: STAGE ACTING II, two (2) credits, three (3) contact hours per week. **Prerequisite:** The fundamental techniques of stage acting. Includes one hour of lecture and two of laboratory.

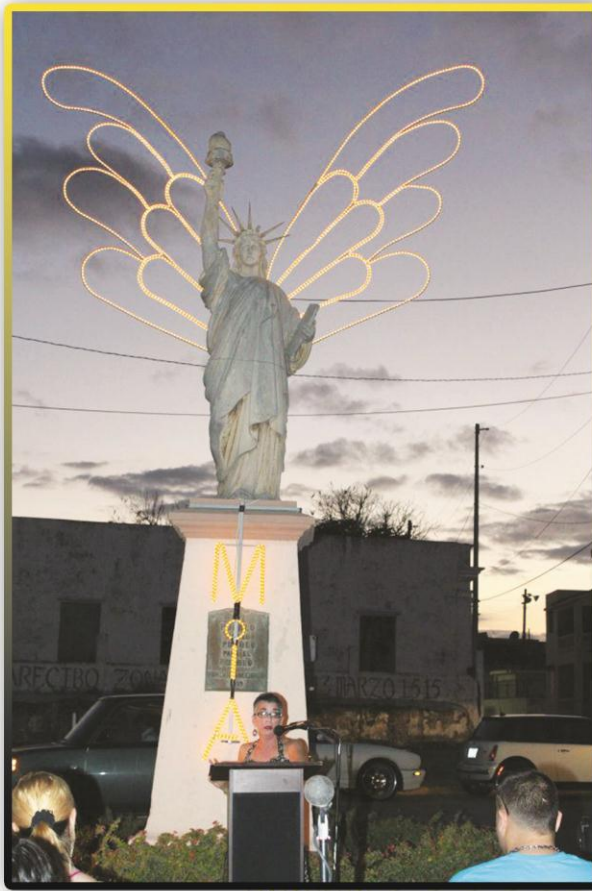
TEAT 3025: APPRECIATION OF THE DRAMATIC ARTS, three (3) credits, three (3) contact hours per week. Analysis of the different elements that contribute to the realization of a theater production, a short history of the theater and representation of dramatic pieces. Workshop is optional.

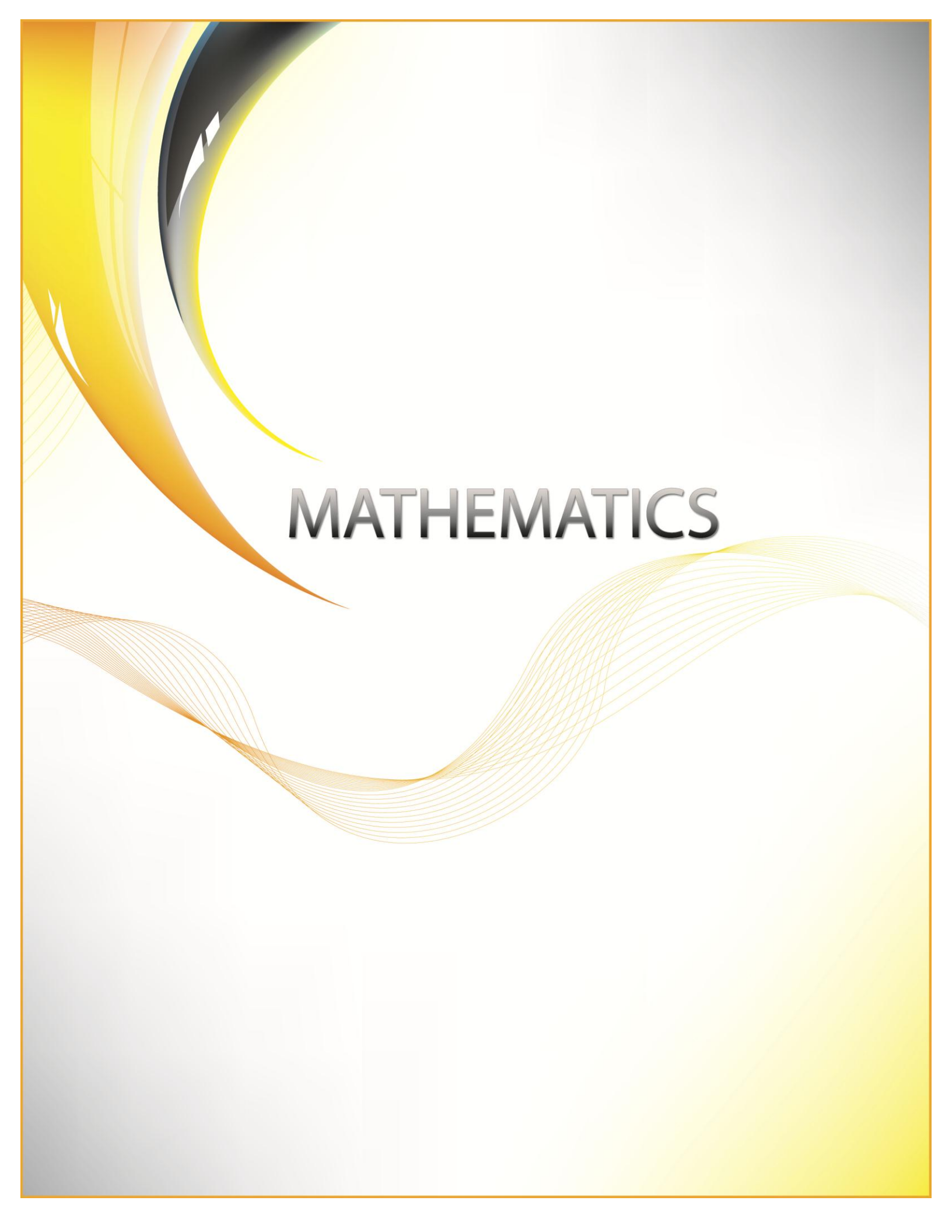
TEAT 3030: DICTION, three (3) credits, three (3) contact hours per week. Fundamental aspects of the theory and techniques of theatrical diction.

TEAT 3161: PANTOMIME I, three (3) credits, three (3) contact hours per week. Disciplined preparation of the intellect the imagination and the body of aspiring pantomimes to improvise on stage or in mimed dramas. Students will learn to appreciate the various tradition of this ancient art form while practicing it or while acquiring skills through practice.

TEAT 3191: INTRODUCTION TO THEATRICAL PRODUCTION I, three (3) credits, two (2) lecture hours and three (3) practice hours, a total of five (5) hours per week. The theory and practice of theatrical production. Study of the script, research on the historical time, development of the concept of production, wardrobe and make-up design, scenery, props, lighting, sound effects and publicity campaign.

TEAT 3192: INTRODUCTION TO THEATRICAL PRODUCTION II, three (3) credits, two (2) lecture hours and three (3) practice hours, a total of five (5) hours per week. A continuation of TEAT 3191.





MATHEMATICS

MATHEMATICS DEPARTMENT

FACULTY

Alvarado Torres, René, M.S., *Associate Professor*, Master of Science, Applied Mathematics, Universidad de Puerto Rico, Recinto de Río Piedras

Berra Pérez, Julio, M.S., *Associate Professor*, Master of Science, Applied Mathematics, Universidad de Puerto Rico, Recinto de Río Piedras.

Candelaria Soberal, José F., Ph.D., *Assistant Professor* Doctorate in Mathematics, University of Iowa.

Castañer Rubio, Myrna, M.S., *Assistant Professor*, Master of Science, Applied Mathematics, Universidad de Puerto Rico, Recinto de Mayagüez.

Humarán Martínez, Yuitza T., M.S., *Assistant Professor*, Master of Science, Applied Mathematics, Universidad de Puerto Rico, Recinto de Mayagüez.

Leonardo Suárez, Luisa, M.S., *Associate Professor*, Master of Science, Applied Mathematics, Universidad de Puerto Rico, Recinto de Mayagüez..

Molinares Ballesteros, Carlos, M.S., *Instructor*, Master of Science, Applied Mathematics, Universidad de Puerto Rico, Recinto de Río Piedras.

Rivera Rivera, Manuel, M.S., *Assistant Professor*, Master of Science, Applied Mathematics, Universidad de Puerto Rico, Recinto de Río Piedras.

Sánchez Zambrana, Anneliese, M.S., *Associate Professor*, Master of Science, Applied Mathematics, Universidad de Puerto Rico, Recinto de Río Piedras.

Santiago Labrador, Glorymill, M.S., *Professor*, Master of Science, Pure Mathematics, Universidad de Puerto Rico, Recinto de Río Piedras.

Soto López, Reinaldo, M.S., *Professor*, Master of Science, Pure Mathematics, Universidad de Puerto Rico, Recinto de Río Piedras.

Williams Cruz, Osvaldo, M.S., *Assistant Professor*; Master of Science, Pure Mathematics, Unviersidad de Puerto Rico, Recinto de Río Piedras.

LIST OF COURSES

MATE 0008: DEVELOPMENT OF BASIC MATHEMATICAL SKILLS, three (3) credits, three (3) contact hours per week. This course focuses on mathematical topics such as basic algebraic expressions, polynomials, factorization, basic mathematical operations with rational expressions, radicals, systems of equations with two linear equations and their applications.

MATE 3001: INTRODUCTORY MATHEMATICS I, three (3) credits, three (3) contact hours per week. Pre-requisite: A score of 600 or more in the CEEB Admission Test. It includes: basic elements of the set theory and logic, polynomials and rational expressions, elementary functions and their graphs, equations and inequalities, matrices and determinants, systems of equations, systems of linear equations and their applications; the quadratic equation.

MATE 3002: INTRODUCTORY MATHEMATICS II, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3001. It includes the exponential function; linear, quadratic and rational functions; exponential functions and logarithms; trigonometric functions and their inverse; vectors.

MATE 3004: ALGEBRA, three (3) credits, three (3) contact hours per week. Basic operations with algebraic expressions and polynomials, factoring, basic operations with algebraic functions, systems of linear equations in two variables, roots, application problems.

MATE 3005: PRE-CALCULUS, five (5) credits, five (5) contact hours per week. Pre-requisite: MATE 3004, MATE 0006, MATE 0008 or a score of 650 or higher in the Mathematics Achievement section of the CEEB exam. Numbers systems; properties of real numbers; exponents; roots and radicals; inequalities; absolute values, relations and functions; graphs; inverse, exponential, logarithmic and circular functions; sine and cosine; complex numbers; polynomials; equation systems; matrices; determinants; analytic geometry and binomial theory.

MATE 3011: QUANTITATIVE METHODS I, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3004, MATE 0006, MATE 0008 or a score of 650 or higher in the Mathematics Achievement section of the CEEB exam. Review of intermediate algebra; linear and quadratic equations; linear inequalities; relations and functions; polynomial and rational functions; applications.

MATE 3012: QUANTITATIVE METHODS II, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3011. Includes topics such as: matrices and determinants, systems of equations; inequalities and systems of linear inequalities in two variables; linear

programming; exponential and logarithms functions; successions: Binomial Theorem; business math, and other applications in commerce.

MATE 3013: QUANTITATIVE METHODS III, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3012. Review of functions: limits and successions; differential calculus and introduction to integral calculus and its uses in the commercial field.

MATE 3015: INTRODUCTION TO STATISTICS, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3001, MATE 3035 or MATE 3041. Includes topics such as: frequency distribution, graphs, descriptive analysis of a sample, probability, mathematical expectations, binomial distribution, and normal distribution, predictions and simple correlations.

MATE 3026: INTRODUCTION TO COMPUTER ASSISTED STATISTICS, three (3) credits, four (4) contact hours per week. Pre-requisite MATE 3171. It includes an introduction to the use of computers, basic concepts of scientific programming, introduction to descriptive statistics, permutations, combinations and correlations and mutations. Discrete and continuous sampling. Estimation. Hypothesis testing. Computerized systems for statistics. The use of the computer in the use of random experiments. The student will realize programming projects in which the concepts studied are used.

MATE 3031: CALCULUS I, five (4) credits, four (4) contact hours per week. Pre-requisite: MATE 3005 or MATE 3172. This course is designed for physics, Chemistry and Mathematics majors. It includes topics such as: the study of limits, continuity, derivate and its applications, rules of differentiation, curve sketching, maxima and minima problems, approximations, implicit differentiation and the study of the circle, parabola, ellipse and the hyperbola. Also, the mean value theorem, anti differentiation, indefinite integrals, rules of integrations, the fundamentals theorem of calculus, definite integrals, the area under a curve, the area between two curves, approximate area, Simpson and trapezoidal rules, application of the definite integrals, trigonometric functions and their graphs, derivatives and integrals, exponential and logarithmic functions, their derivatives and integrals, parametric equations, simple differential equations and polar coordinates.

MATE 3032: CALCULUS II, four (4) credits, four (4) contact hours per week. Pre-requisite: MATE 3031. Includes topics such as: integration techniques, polar coordinates, parametric equations, indeterminate forms, improper integrals, linear algebra, series and their applications.

MATE 3035: HEALTH RELATED MATHEMATICS: three (3) credits, three (3) lecture hours per week. Notions about sets, development of real number systems starting from natural numbers; fractions; simple linear equations; decimal system; percentage; ratios and

proportions; metric, English, apothecary and home systems; applications for preparing solutions and medications; graphs and statistics.

MATE 3040: THEORY OF NUMBERS, three (3) credits, three (3) hours of lecture per week. Divisibility and number systems. Common divisors and multiples. Euclid's algorithm. Methods of Fermat, Euler and Brunn. Introduction to the theory of primes. Functions of the theory of numbers. Linear diophantine equation. Congruences. Historical development and contributors to the theory.

MATE 3041: INTRODUCTION TO MATHEMATICS I, three (3) credits, three (3) contact hours per week. Notions about set theory, logic, algebraic axioms, real number systems, operations, and their properties; numbers and their properties, decimal number system, graphic representation in the number line, equivalence, equality and order relations. The course will emphasize the understanding of the philosophy and methods of mathematics.

MATE 3042: INTRODUCTION TO MATHEMATICS II, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3041. Graphs and functions. Elements of the Euclidian geometry. Measurements of area and volume. Statistics and Probabilities elements. Normal Distribution. This course emphasize on the understanding of mathematics methods and philosophy.

MATE 3063: CALCULUS III, four (4) credits, four (4) contact hours per week. Pre-requisite: MATE 3032. Differential and integral calculus with several variables and an introduction to differential equations with applications.

MATE 3105: APPRECIATION OF MATHEMATICS, three (3) credits, three (3) contact hours per week. The nature of modern mathematics including: the elements of set theory, logic, number systems, some properties of real numbers, probability and statistics.

MATE 3171: PRE-CALCULUS I, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3004, MATE 0006, MATE 0008 or a score of 650 or higher in the Mathematics Achievement section of the CEEB exam. This course includes number systems, properties of real numbers, exponents, roots and radicals, inequalities, absolute value, relations and functions, exponential functions, logarithmic and circular functions, laws of sines and cosines, complex numbers, polynomials, systems of equations, matrices, determinants, analytical geometry and the binomial theorem.

MATE 3172: PRE-CALCULUS II, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3171. Analytic Trigonometry; complex numbers; plane analytic geometry; successions and mathematical induction; systems of equations; matrices.

MATE 3175: DISCRETE MATHEMATICS, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3172. Presents to and familiarized the student with the basic concepts of discrete mathematics. Includes the theory of graphics, basic properties of graphs and directed graphs, trees, analysis, combinatorial and concurrent relations.

MATE 3177: COMPUTER ASSISTED NUMBERS ANALYSIS, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3032 and CCOM 3002. Direct and interactive solution of linear systems, solution of equations and non-linear systems, “eigen values” and “eigen vectors”, approximation of functions; interpolation, differentiation and numerical integration. Minimal quadratics, analysis of harmonics, selections and use of tables.

MATE 4031: LINEAR ALGEBRA, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3032. Algebra of matrices. Determinants. Systems of linear equations. Vector spaces of finite dimension. Linear dependence and independence. Bases. Euclidean spaces. Linear transformations. Transformation of similitude. Vector and characteristic values. Internal products. Norms. Octagonal projections. Gram-Schmidt octagonization.

MATE 4032: ADVANCED ALGEBRA I, three (3) credits, three (3) contact hours per week. Pre-requisites: MATE 3172, 3151, 3037 and 4060. Introduction to set theory. Co-classes and the Lagrange Theorem. Subnormal group and cosent groups. Group homomorphism. The theorems of isomorphism. Finite groups. Permutative groups and Cayley’s Theorem.

MATE 4105: GEOMETRY FOR ELEMENTARY SCHOOL TEACHERS; three (3) credits, three (3) contact hours per week. Pre-requisite: Mate3042 Fundamental principles of plane geometry, construction of flat figures, angle measuring; congruencies, area, perimeters and volumes, straight parallels and perpendiculars, polygons, the circle. Methodology of teaching geometry at the elementary level.



SPANISH

SPANISH DEPARTMENT

FACULTY

Altieri Sotomayor, Yeidi, Ph.D. *Assistant Professor*, Doctor of Philosophy, Puerto Rican and Caribbean Literature, Centro de Estudios Avanzados de Puerto Rico y el Caribe

Domenech Flores, Emma, M.A., *Associate Professor*, Spanish-American Literature, Queens College, City University of New York (CUNY).

Franqui Rosario, Rebeca, Ph.D. *Associate Professor*, Puerto Rican Literature, Cornell University.

González Muñiz, Rosa del C., Ph.D., *Professor*, Linguistics, Universidad de Puerto Rico, Río Piedras.

Jiménez Rivera, Evelyn, J.D. Ph.D., *Associate Professor*, Puerto Rican Literature University of Massachusetts. Juris Doctor, Universidad de Puerto Rico, Río Piedras.

Juarbe Bonilla, Lizzette, Ph.D., *Assistant Professor*, Doctor of Philosophy, Puerto Rican and Caribbean Literature, Centro de Estudios Avanzados de Puerto Rico y el Caribe.

Mejías López, William, Ph.D, *Professor*, Colonial Literature, Universidad of California, Berkeley.

Ortiz Maldonado, Eduardo, Ph.D., *Assistant Professor*, Spanish Literature, Emory University.

Pérez Torres, Yazmín, Ph.D, *Professor*, Puerto Rican Literature, University of Wisconsin at Madison.

Ríos Soto, Marilyn, Ph.D. *Assistant Professor*. Latin American Literature, University of Connecticut.

Rivera Hernández, José J., M.A., *Assistant Professor* , Hispanic Studies, Universidad de Puerto Rico, Río Piedras.

LIST OF COURSES

ESCO

ESCO 3001: THE PSYCHOLOGY OF COMMUNICATION I, three (3) credits, three (3) contact hours per week. The study of writing and writing styles. The psychology and language of business. Oral and written communication techniques; advertisement. The course presents a broad view of the business world.

ESCO 3002: THE PSYCHOLOGY OF COMMUNICATION II, three (3) credits, three (3) contact hours per week. Pre-requisite: ESCO 3001. The business letter and its importance in the business world. Practice in writing different types of business letters. Techniques, ethics, style and editing are studied in order to achieve effective written communication.

ESPA

ESPA 0060: DEVELOPMENTAL SPANISH, three (3) credits, three (3) lecture hours per week. Designed for students who do not have the skills to do effective work in the Basic Spanish course. The course aims to improve student's skills through grammar exercises and the development of composition skills so as to prepare them to compete on an equal basis with students in the Basic Spanish course.

ESPA 3007: ORAL COMMUNICATION, three (3) credits, three (3) lecture hours per week. Pre-requisite: ESPA 3102. This course combines communication and language theory with practice and exercises about oral language principles. It recognizes particular language characteristics and it discusses mistakes that should be avoided. It pays special attention to the structure of oral language in media. It is mainly a workshop in which communications students are exposed to the language as a vitally important tool for Information broadcast through this course, students will Improve diction, projection and voice modulation skills, as they will learn how to use language in a planned and strategic way.

ESPA 3101: BASIC SPANISH I, three (3) credits, three (3) contact hours per week. An introduction to the study of the historical and grammatical aspects of the Spanish language. A panoramic view of Spanish literature. Basic themes in the short story and the novel.

ESPA 3102: BASIC SPANISH II, three (3) credits, three (3) contact hours per week. Pre-requisite: ESPA 3101. A continuation of the study of the grammatical aspects of the language. A division of contemporary Spanish literature by studying the basic themes in the essay, drama and poetry.

ESPA 3111: HONOR SPANISH I, three credit hours, three hours of lecture per week.

Offered to students who have a superior preparation in the literary linguistic aspect. It follows the lines of a basic course, but in an advanced and intense manner. The student will handle the research and writing techniques of essays.

ESPA 3112: HONOR SPANISH II, three credit hours, three hours of lecture per week. Pre-requisite: ESPA 3111.

ESPA 3208. COMPOSITION, three credit hours, three hours of lecture per week. Pre-requisite: ESPA 3102. Theory of grammar applied to the written language; comparison among languages of diverse literary genres; elements of semantic and stylistics.

ESPA 3211: INTRODUCTION TO SPANISH LITERATURE I, three (3) credits, three (3) contact hours per week. Pre-requisite: ESPA 3102. A study of literary styles, authors and works representative of Spanish literature from its medieval origins to the Renaissance.

ESPA 3212: INTRODUCTION TO SPANISH LITERATURE II, three (3) credits, three (3) contact hours per week. Pre-requisite: ESPA 3211. A study of literary styles authors and works representative of Spanish literature from the Golden Age to the present.

ESPA 3215: BUSINESS EXPRESSION AND COMMUNICATION, three (3) credits, three (3) contact hours per week. Pre-requisite: ESPA 3102. Development of skills for efficient language use, both oral and written. Special attention will be given to written communication forms: letters, memoranda, summaries, reports, etc. The principles of logic and psychology basic to the efficient writing of these forms will be presented and intense practice in their preparation will be given.

ESPA 3290: INTRODUCTION TO SPANISH GRAMMAR, three (3) credits, three (3) contact hours per week. This course attempts to fill a void left by other courses. This is strictly a grammatical course designed for students who want to delve deeply into the phonological, morphological, syntactical and orthographical levels of the language. It consists of three units: theory and practice of orthography, theory and practice of morphology, theory and practice of syntax.

ESPA 3305: FILM AND HISPANIC LITERATURE, three (3) credits, three (3) contact hours per week. Pre-requisite: ESPA 3102. A comparative analysis of literary and cinematic codes in Hispanic texts and the films based on them.

ESPA 4221: SPANISH-AMERICAN LITERATURE I, three (3) credits, three (3) contact hours per week. Pre-requisite: ESPA 3102. Broad view of Spanish-American literature from the Indian chronicles to the end of post-romanticism.

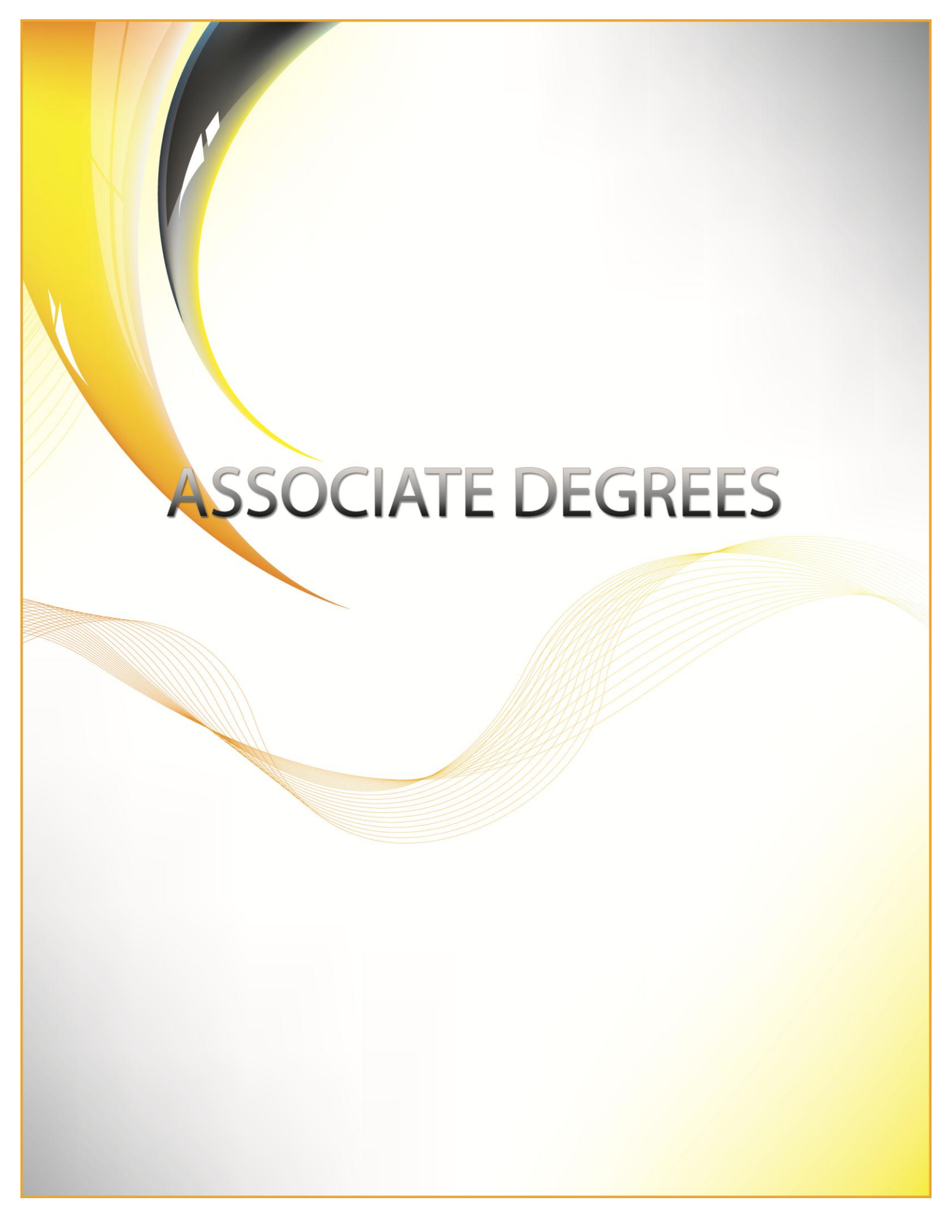
ESPA 4222: SPANISH-AMERICAN LITERATURE II, three (3) credits, three (3) contact hours per week. Pre-requisite: ESPA 4221. A broad view of Spanish-American literature from Modernism to the present. The study of the principal authors and their works within the corresponding historical framework.

ESPA 4231: PUERTO RICAN LITERATURE I, three (3) credits, three (3) contact hours per week. Pre-requisite: ESPA 3102. A broad view of Puerto Rican literature from its origins to the avant-garde movement. Reading and analysis of representative works from each period.

ESPA 4232: PUERTO RICAN LITERATURE II, three (3) credits, three (3) contact hours per week. Pre-requisite: ESPA 4231. A broad view of Puerto Rican literature from the “Generación del treinta” to the present. The study of the major works of the most important authors.

ESPA 4233: CONTEMPORARY PUERTO RICAN LITERATURE , three (3) credits, three (3) contact hours per week. Pre-requisite: ESPA 3102. Evaluation and analysis of Puerto Rican literature beginning from writers of the fifties until the present.

ESPA 4267: PUERTO RICAN LITERATURE (COMPENDIUM) , three (3) credits, three (3) contact hours per week. Pre-requisite: ESPA 3102. Consolidated course of Puerto Rican literature, its development and peculiarities within the Latin American framework.



ASSOCIATE DEGREES

BIOLOGY DEPARTMENT
ASSOCIATE DEGREE IN VETERINARY TECHNOLOGY
(2706)

MISSION OF THE DEPARTMENT

Develop a competent profesional in the Biology field.

MISSION OF THE PROGRAM

Development of a human being sensitive to animals and the enjoyment of these and at the same time; becoming an educated citizen conscious of an ethical, social and cultural obligation. A professional with the knowledge, skills and necessary attitudes to perform successfully in the field of veterinary technology.

PROGRAM DESCRIPTION

The Associate Degree in Veterinary Technology prepares the student in providing professional assistance to veterinary surgeons, researchers, animal control organizations and the prevention of diseases.

Graduates from the program will obtain broad knowledge in the caring and handling of animals, their anatomy and physiology. They will also obtain training in medical and surgical nursing, anesthesiology, radiology and clinical laboratory procedures. They will also be capable of identifying those diseases affecting animals and develop prevention protocols for these. These health professionals will work under the direct supervision of a veterinary surgeon.

GOALS

Graduates of the Associate Degree in Veterinary Technology are expected to:

1. Become influential members of the Puerto Rican society; a citizen who enjoys and shows compassion to animals.
2. Participate and perform effectively in the field of veterinary technology.
3. Have the necessary skills and knowledge needed to work individually under minimum supervision.
4. Apply the skills needed to solve problems in the veterinary technology field.

GRADUATES' PROFILE

Comply with every law applicable to the profession and the ethics code of a veterinary technician.

1. Participate in the handling of a veterinary hospital.
2. Speak fluently using the correct terminology of the profession.
3. Administer, dispense and explain the medicines prescribed to patients.
4. Determine and work with assessment/monitoring techniques, therapy, prophylaxis, rooming, nutrition and dentistry.
5. Effective and safe handling of patients.
6. Analyze medical specimens at the laboratory, assist in the procedures of autopsy, anesthesia, take X-Rays and ultrasound images.
7. Foster the safe and effective handling of birds, reptiles, amphibians, guinea pigs, gerbils and ferrets.

JOB OPPORTUNITIES

Some of the job opportunities for program graduates are:

- Veterinary Hospitals
- Farming and agricultural companies and laboratorios.
- Governmental agencies
- Research and investigation centers
- Pharmaceutical industries
- Continue graduate studies

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
SAAN 2001	Veterinary Anatomy and Physiology	5
SAAN 2002	Veterinary Anatomy and Physiology Lab	0
SAAN 2005	Introduction to Veterinary Technology	3
ESPA 3101	Basic Spanish I	3
BIOL 3011	General Biology I	4
BIOL 3013	General Biology Lab. I	<u>0</u>
		Total 15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
SAAN 2008	Veterinary Nursing	3
SAAN 2011	Veterinary Technology I	3
ESPA 3102	Basic Spanish II	3
MATE 3001	Introduction to Mathematics	3
QUIM 3011	Foundations of General Chemistry, Organic and Biochemistry	5
QUIM 3013	Foundations of General Chemistry, Organic and Biochemistry Lab.	<u>0</u>
		Total 16

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
SAAN 2012	Veterinary Technology II	3
SAAN 2015	Methods and Handling of large Animals	4
SAAN 2016	Methods and Handling of large Animals Lab	0
BIOL 3705	Foundations in Microbiology	4
BIOL 3707	Foundations in Microbiology Lab	0
SICI 3028	Applied Programming	3
INGL 3101*	Basic English I	3
INGL 3113*	Basic English I Lab	<u>0</u>
		Total 17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
SAAN 2006	Infectious Diseases	3
SAAN 2009	Veterinary X-Ray	2
SAAN 2018	Veterinary Technology Pharmacology	2
SAAN 2027	Field Work	6
SAAN 2028	Field Work Lab	0
INGL 3102*	Basic English II	3
INGL 3114*	Basic English Lab II	<u>0</u>
		Total 16

Total Credits 65

* Students who have scored 580 in their CEEB will take INGL 3102-04 (Intermediate English I-II). These courses do not need the Oral Practice I-II (INGL 3113-14).

LIST OF COURSES

SAAN 2001: VETERINARY ANATOMY AND PHYSIOLOGY, five (5) credits, four (4) contact hours per week. Co-requisite: SAAN 2002. Histological, anatomical and physiological study of the skeletal, muscular, epithelial, respiratory, cardiovascular, urinary, endocrine, nervous and immune systems. Emphasis is given to the interrelation among systems for the normal functioning of the body. Veterinary terminology relating to anatomy and physiology is studied. The dog is used as a model and compared to the cat, the horse, the pig, the cow and birds using skeletons, models, audiovisual, dissection specimens and laboratory experiences.

SAAN 2002: LABORATORY FOR VETERINARY ANATOMY AND PHYSIOLOGY, zero (0) credits, three (3) contact hours per week. Co-requisite: SAAN 2001. This course complements the material studied in class. It includes laboratory safety techniques. Histological and anatomical study of body systems of domestic animals in terms of their clinical importance. This laboratory uses the cat as a dissection specimen and compares it to the dog, horse, pig, cattle and birds by using skeletons, models and audiovisual material, among others.

SAAN 2005: INTRODUCTION TO VETERINARY TECHNOLOGY, three (3) credits, three (3) contact hours per week. This course initiates students in the use of concepts, basic principles, and clinical laboratory experience related to the work performed by a veterinary technician. The functions, duties and responsibilities of this professional are established. The course also defines medical terms, economy concepts and basic veterinary hospital administration principles. Main animal breeds and domestic animal species are identified. The concepts of behavior, restraining, and safety are presented. Basic assessment techniques, medical records, physical exams, taking samples and vaccination protocols are illustrated.

SAAN 2006: INFECTIOUS DISEASES, three (3) credits, three (3) contact hours per week. Pre-requisites: SAAN 2001, SAAN 2005. This course familiarizes students with the physiopathological processes of the most common infectious diseases. It relates the respective clinical symptoms with the main forms of diagnosis and therapy. It pays particular attention to practical concepts of immunization and prevention of infectious diseases in domestic animals. It familiarizes students with zoonotic diseases and their prevention.

SAAN 2007: HYGIENE AND MAINTENANCE OF INDUSTRIAL EQUIPMENT AND PRODUCTS, three (3) credits, three (3) contact hours per week. The course is designed to give students the necessary knowledge concerning sanitation techniques that should be observed during the different processes in the field of animal and farming husbandry. Emphasis is given to the maintenance process in milking equipment.

SAAN 2008: VETERINARY NURSING; three (3) credits, three contact hours per week. Pre-requisites: SAAN 2001. With the use of conferences, class discussions and presentations, the Veterinary Technology student will study the assessment/monitoring techniques in patients, specially in hospitalized patients. The student is expected to develop and perform therapy, rooming, nutrition and restraining methods and the administration of medicine. Small species reproduction is also studied. The student will be also trained in nursing surgery emphasizing in aseptic methods, the caring and preparation of patients before and after a surgical procedure.

SAAN 2009: VETERINARY X-RAY; two (2) credits, two contact hours per week. Pre-requisite: SAAN 2001 Through the use of conferences, class discussions and presentations, the Veterinary Technology student will study the security measures considered in diverse radiology studies. Radiography principles are discussed, as well as principles of endoscopy and ultrasound images needed in the production of diagnostic images. The student is expected to develop the necessary skills to identify X-Rays, films and records.

SAAN 2011: VETERINARY TECHNOLOGY I; three (3) credits, three contact hours per week. Pre-requisite: SAAN 2001, SAAN 2005. Through demonstrations, patient management, and the use of clinical lab equipment, the student of veterinary technology becomes capable of the taking, analysis, and interpretation of blood and urine samples. Diagnostic tests for anemia are performed and the possible treatments are discussed. Students also learn to take cytology tests by making diagnostic ophthalmic tests.

SAAN 2012: VETERINARY TECHNOLOGY II, three (3) credits, three (3) contact hours per week; Pre-requisite: SAAN 2011. Through the use of conferences, class discussions and presentations, the Veterinary Technology is presented with the techniques and protocols of medical emergencies, poisoning and intensive care. The class illustrates techniques and basic procedures in autopsy. The student is expected to develop an effective and safe management of the patient in all phases of the anesthetic procedure. Through presentations and exercises the student becomes capable of handling birds, small mammals, and wild, exotic and lab animals.

SAAN 2015: METHODS AND PRACTICE IN HANDLING LARGE ANIMALS, four (4) credits, three (3) contact hour per week. Pre-requisite: SAAN 2006. Study of the most common races of farm animals such as cattle, horses and pigs. It includes patterns of behavior, basic principles used in handling large animals , discussion of the methods for the

improvement of the quality of the herd and healthy living conditions are discussed. The course provides students with basic knowledge of medical-surgical nursing used during handling of large animals. It prepares students to perform as veterinary technicians with ambulatory and hospitalized patients.

SAAN 2016: LABORATORY FOR METHODS AND PRACTICE IN HANDLING LARGE ANIMALS, zero (0) credits, three (3) contact hours per week. Pre-requisite: SAAN 2005. This course complements the material studied in class. It includes safety techniques for handling large animals. The course familiarizes students with the main cattle industry and allows them to observe and develop modern physical facilities. The course provides laboratory experiences where students perform as surgical assistant and nurse during procedures with large animals.

SAAN 2017: CLINICAL VETERINARY TECHNIQUES AND ANALYSIS, three (3) credits, three (3) contact hours per week. Pre-requisite: SAAN 2006. This course provides students the necessary nursing knowledge and skills for their initiation into direct patient care, with emphasis on the areas of clinical importance for the veterinary technician. It includes principles of medical-surgical nursing, handling of medical emergencies, handling of exotic animals, laboratory procedures and image diagnostics. It emphasizes the importance of clinical analysis as an aid to the veterinarian in the determination of a diagnosis. Students use critical thinking skills to estimate, plan and evaluate the care offered to the veterinary patient.

SAAN 2018: PHARMACOLOGY FOR VETERINARY TECHNOLOGY, two (2) credits, two (2) contact hours per week. Pre-requisites: QUIM 3011, SAAN 2005. The course discusses the pharmacological principles of medication prescribed in veterinary medicine. It exposes students to recent products and pharmacological advances. It trains students in the various techniques of administering and dosifying medication for patients under veterinary care.

SAAN 2019: EQUINE SCIENCE; three (3) credits, three (3) hours of lecture per week. Through lectures, class discussions, demonstrations, use of models and equipment, exercise with horses, site visits to farms and pastures will study the basic principles of equine science. This course addresses the principles of equine conformation and selection, behavior and the proper ways of handling. In addition, we study the history, races, marches, airs, uses and characteristics of the horse, as well as, normal health parameters, current vaccination protocols, disease control measures, parasites and their prevention. Will study the musculoskeletal system and its relationship with performance situations, fastening methods, hoof care, common emergencies, bandaging legs, basic nutrition and digestive anatomy. Similarly, the course covers theory and reproductive practices, including care of mare and stallion, newborn care and priming.

SAAN 2025: ANIMAL REPRODUCTION, three (3) credits, three (3) contact hours per week. **Pre-requisites:** SAAN 2015, SAAN 2016. The course discusses the reproductive anatomy and physiology of domestic animals. It prepares students to understand the reproductive cycles of production animals and trains them in more efficient reproduction programs. Emphasis is given to the prevention and treatment of reproductive conditions, post-partum care, care of the newborn, diagnostic and treatment procedures. Male reproductive aspects, semen collection and preservation, artificial insemination and embryo transfer are also discussed.

SAAN 2026: PRINCIPLES OF NUTRITION, three (3) credits, three (3) contact hours per week. A general introductory course where the basic principles of nutrition applied to domestic and farm animals are presented. The course emphasizes the anatomy and physiology of the digestive system. It also underscore the main food groups, nutritional problems and feeding programs for veterinary patients.

SAAN 2027: FIELD WORK, six (6) credits, two (2) contact hours per week. **Pre-requisites:** SAAN 2015, SAAN 2018. **Co-requisite:** SAAN 2028. The course is considered the culmination of the course of study. It places them in real life situations where they will apply and integrate the knowledge, skills and attitudes developed during their academic formation, through lectures, demonstrations and drafting of progress reports.

SAAN 2028: FIELD WORK PRACTICE, zero (0) credits, eight (8) contact hours. **Pre-requisites:** SAAN 2015, SAAN 2016. This course complements the class. The concepts acquired will be applied in real-life situations. Students are placed in a practicum center to enhance and strengthen their knowledge and skills in various clinical areas. The veterinary doctor will act as supervisor, advisor and counselor. Students will be observed and evaluated as they perform their duties as veterinary technicians.

NURSING DEPARTMENT
ASSOCIATE DEGREE IN NURSING

(2404)

The Associate Degree in Nursing is a two-year program that prepares the student to offer direct care services to the patient under the direction and supervision of a general or specialized nursing professional. Graduates from this program can be employed in a variety of health scenarios in Puerto Rico or in the United States. This program is accredited by the NLNAC (www.nlnac.org).

FIRST YEAR

First Semester

CODE	DESCRIPTION	CREDITS
ENFE 1007	Fundamental of Nursing I	2
PSIC 3005	General Psychology	3
BIOL 1011	Human Anatomy and Physiology I	4
BIOL 1012	Lab. for Human Anatomy and Physiology I	0
MATE 3035	Health Related Mathematics	3
ENFE 1016	Historical perspectives of nursing	3
Total		15

Second Semester

CODE	DESCRIPTION	CREDITS
ENFE 1021	Fundamentals of Nursing II	6
ENFE 1022	Lab. Fundamentals of Nursing II	0
BIOL 1013	Human Anatomy and Physiology II	4
BIOL 1014	Lab. for Human Anatomy and Physiology II	0
ENFE 1031	Nursing Intervention in Mental Health and Psychiatry	5
ENFE 1032	Lab. for Nursing Intervention in Mental Health and Psychiatry	0
ENFE 1045	Pharmacotherapy and Medical Calculation	3
Total		18

SECOND YEAR

First Semester

CODE	DESCRIPTION	CREDITS
ENFE 2041	Medical-Surgical Nursing I	6
ENFE 2042	Lab. Medical-Surgical Nursing I	0
BIOL 2001	Elementary Microbiology I	4
BIOL 2002	Lab. Elementary Microbiology I	0
ENFE 2011	Nursing Intervention with Mother and Newborn	5
ENFE 2012	Lab. for Nursing Intervention with Mother and Newborn	0
ESPA 3101	Basic Spanish I	3
	Total	18

Second Semester

CODE	DESCRIPTION	CREDITS
ENFE 2043	Medical-Surgical Nursing II	4
ENFE 2044	Lab. for Medical-Surgical Nursing II	2
ENFE 2051	Pediatric Nursing Intervention	3
ENFE 2052	Lab. for Pediatric Nursing Intervention	2
CISO 3121	Introduction to Social Sciences I	3
INGL 3101	Basic English II	3
INGL 3113	Oral Practice II	0
	Total	17

*Students who score above 580 on the English language part of the College Board Examination will take INGL 3103-Intermediate English I and INGL 3104-Intermediate English II. This sequence does not require the oral practice laboratory.

Note: Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

LIST OF COURSES

ASSOCIATED PROGRAMS NURSING

ENFE 1007: FUNDAMENTAL OF NURSING I, two (2) credits, six (6) hours of laboratory per week. This course initiates students in basic nursing skills. Both the theoretical and practical content of skill are discussed.

ENFE 1045: PHARMACOTHERAPY AND MEDICATION CALCULATION, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3035. Students learn mathematical dosification formulas for oral and parenteral medications, types of medication, methods and measures for administering medications. In addition, students are exposed to pharmacokinetics and pharmacodynamics. This is a first-level course for the Associate Degree in Nursing.

ENFE 1021: FUNDAMENTALS OF NURSING II, six (6) credits, four (4) hours of lecture and six (6) laboratory hours per week. Pre-requisite: ENFE XXXX. (FUNDAMENTALS OF NURSING I) This course provides further basic concepts, skills and techniques for practicing nursing. It applies Dorothea Orem's theory of self-help in regards to clients. Students begin to learn to identify the universal requirements of human beings and health deviations. They apply the nursing process emphasizing the nursing estimation and diagnostic. This is a first-level course for the Associate Degree in Nursing.

ENFE 1022: FUNDAMENTALS OF NURSING II LABORATORY; zero (0) credits, six (6) hours of laboratory per week. Pre-requisite: ENFE 1007 (FUNDAMENTALS OF NURSING I). This course provides further basic concepts, skills and techniques for practicing nursing and providing direct care to clients by applying Dorothea Orem's theory of self-help. It provides simulated laboratory practice and complementary and supplementary clinics for ENFE 1021 Fundamentals of Nursing II.

ENFE 1031: NURSING INTERVENTION IN MENTAL HEALTH AND PSYCHIATRY, five (5) credits, three (3) lecture hours per week, six (6) lab hours per week. Pre-requisite: ENFE 1007 (FUNDAMENTALS OF NURSING I), PSIC 3005. Students are exposed to the historic background, ethical and legal aspects of psychiatry. In addition, students acquire knowledge to apply the principles of mental health promotion, restoration and maintenance. Students recognize the most common psycho-social deviations in clients in the health-illness continuum. Mental health and mental illness topics, human responses that alter functioning, and disorders that affect psycho-social integrity are discussed. This is a first-level course for the Associate Degree in Nursing.

ENFE 1032: LABORATORY FOR NURSING INTERVENTION IN MENTAL HEALTH AND PSYCHIATRY, zero (0) credits, six (6) hours of laboratory per week. Pre-requisite: ENFE 1007 (FUNDAMENTALS OF NURSING I), PSIC 3005. This laboratory is complemented with the theory included in ENFE 1031: Nursing Intervention In Mental Health And Psychiatry. It allows students to apply the principles of promotion, restoration and maintenance of mental health to individuals and groups in the three systems of care: partially compensatory, wholly compensatory and supportive-educative. Students recognize the most common client psycho-social deviations in the health-illness continuum. This is a first-level course for the Associate Degree in Nursing.

ENFE 2041: MEDICAL-SURGICAL NURSING I, six (6) credits, four (4) hours of lecture and six (6) laboratory hours per week. Pre-requisite: ENFE 1045, PHARMACOTHERAPY AND MEDICATION CALCULATION. This course is based on Dorothea Orem's theory, considering the person-environment interaction and the nursing process. The content is based on the principles involved in the care of individuals who show deviation from self-care requirements. Emphasis is given to the need for liquids and electrolytes, elimination, nutrition, integrity of the skin and the senses. Nursing intervention during learning is directed towards the initiation of the practice of health promotion, treatment and rehabilitation of clients at the optimum level of health in the health-illness continuum.

ENFE 2042: LABORATORY FOR MEDICAL-SURGICAL NURSING I, zero (0) credits, six (6) hours of laboratory per week. Pre-requisite: ENFE 1045 PHARMACOTHERAPY AND MEDICATION CALCULATION. Students intervene with clients with deviations in liquid and electrolytes, elimination, nutrition, integrity of skin, senses and immunological response. The course affords students experiences in a simulated laboratory and general hospital experience for initiation in the skills included in the course. This is a second-level course for the Associate Degree in Nursing.

ENFE 2043: MEDICAL-SURGICAL NURSING II, six (6) credits, four (4) hours of lecture and six (6) laboratory hours per week. Pre-requisite: ENFE 2041-2042, ENFE 1045, PHARMACOTHERAPY AND MEDICATION CALCULATION. This course is based on Dorothea Orem self-care theory, having considered the interaction man-environment and the nursing process. The course will provide to the students the opportunity to develop knowledge, skills and fundamental attitudes to care clients who present deviations in the self-care requirements. This course responds to the existing needs of health in Puerto Rico, according to the causes of morbidity and mortality in the Vital Statistics of Puerto Rico, such as: Pulmonary disease, cardiovascular diseases, cerebral vascular accident, cancer, traumas and conditions of the genitor-urinary system. This course is placed in the third level of the ADN program.

ENFE 2044: LABORATORY FOR MEDICAL-SURGICAL NURSING II, zero (2) credits, six (6) hours of laboratory per week. Pre-requisite: ENFE 1045 PHARMACOTHERAPY AND MEDICATION CALCULATION. This laboratory course provides to the student the opportunity to care clients who exhibit health deviations on self-care deficit in clients with: Pulmonary diseases, cardiovascular disease, cerebral vascular accident, cancer, traumas and conditions of the genitor-urinary system. This course is placed in the third level of the ADN program.

ENFE 2011: NURSING INTERVENTION WITH THE MOTHER AND THE NEWBORN. five (5) credits, three (3) lecture hours per week, six (6) lab hours per week. Pre-requisite: ENFE 1021: FUNDAMENTALS OF NURSING II, ENFE 1045: PHARMACOTHERAPY AND MEDICATION CALCULATION. This course provides students with the knowledge and skills to promote self-care of mothers during pregnancy, birth, puerperium and care for the newborn, using the nursing process. Physiological, psychological, social and spiritual integrity of the client and her family are promoted. The course considers health deviations in the various stages of maternity. It determines the nursing interventions necessary to help the mother and the newborn maintain their integrity.

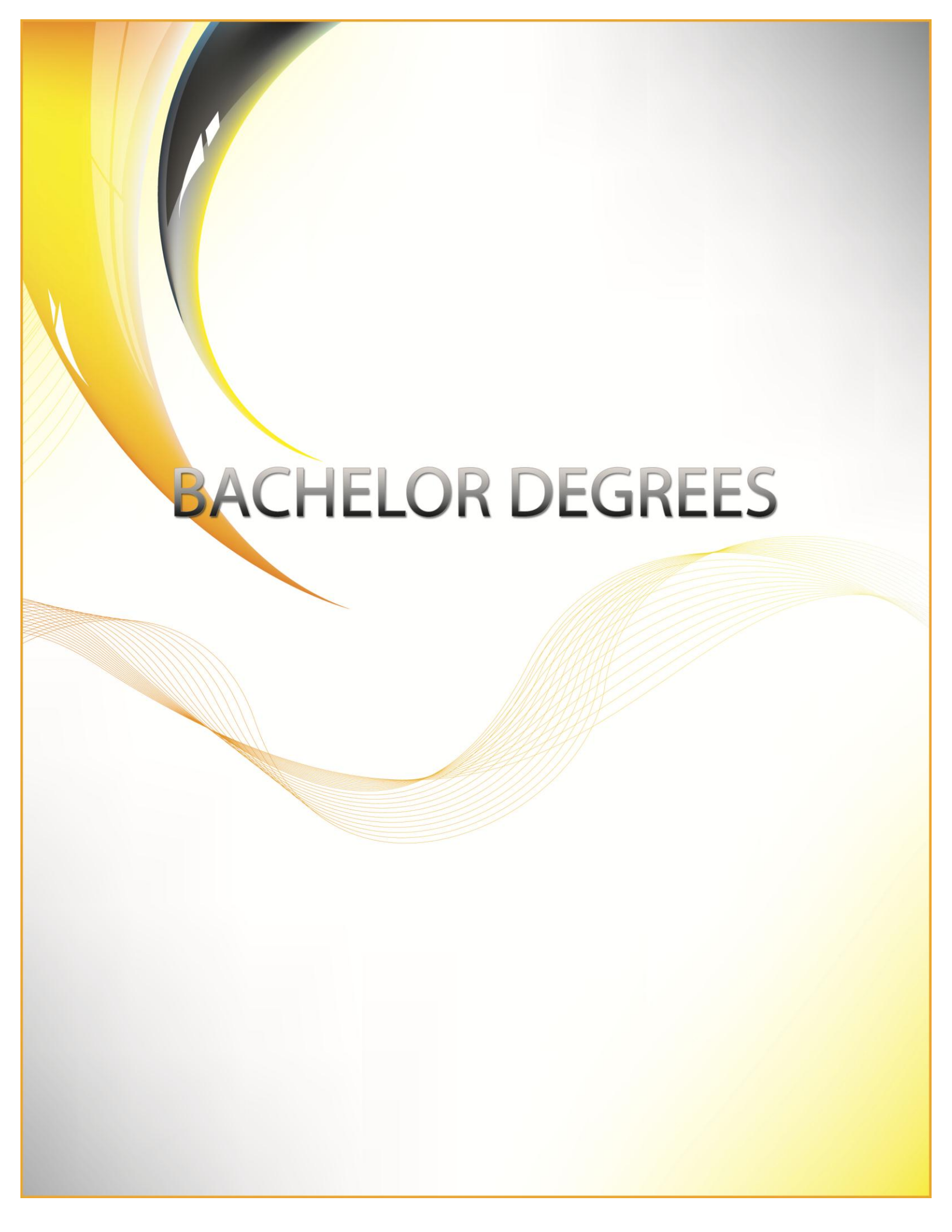
ENFE 2012: LABORATORY FOR NURSING INTERVENTION WITH THE MOTHER AND THE NEWBORN: zero (0) credits, six (6) laboratory hours per week. Pre-requisite: ENFE 1021: FUNDAMENTALS OF NURSING II, ENFE 1045: PHARMACOTHERAPY AND MEDICATION CALCULATION. This laboratory course provides students the opportunity to intervene with pregnant women and newborns. It includes simulated laboratory practice and complementary and supplementary clinics for ENFE 2011: Nursing Intervention with the Mother and the Newborn. This is a second-level course for the Associate Degree in Nursing.

ENFE 2051: PEDIATRIC NURSING INTERVENTION, five (5) credits, three (3) hours of lecture and six (6) hours of laboratory per week. Pre-requisite: ENFE 1021, Fundamentals of Nursing; ENFE 1045, PHARMACOTHERAPY AND MEDICATION CALCULATION. This course provides students with the opportunity to acquire, knowledge, skills and activities to provide direct care to children and adolescents with health deviations. The content is based on the factors associated with the stages of growth and development and how they affect children and adolescents in universal requirements and health deviations.

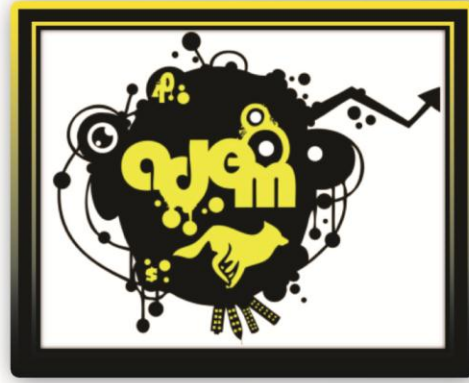
ENFE 2052: LABORATORY FOR PEDIATRIC NURSING INTERVENTION, zero (2) credits, six (6) hours of laboratory per week. Pre-requisite: ENFE 1021, Fundamentals of Nursing; ENFE 1045, PHARMACOTHERAPY AND MEDICATION CALCULATION. This course affords students with the opportunity to intervene with pediatric clients at different stages of growth and development. It provides laboratory the course affords students simulated laboratory and clinical practice, to complement and supplement the course on

Pediatric Nursing Intervention. This is a third-level course for the Associate Degree in Nursing.

ENFE 1016: HISTORICAL AND CONTEMPORARY PERSPECTIVES ON NURSING, three (3) credits, three (3) contact hours per week. The history and development of the profession are studied with emphasis on the legal and ethical aspects of nursing. Contemporary health and nursing problems are discussed. .



BACHELOR DEGREES



Business Administration



BACHELOR'S DEGREE IN BUSINESS ADMINISTRATION

The Department of Business Administration offers bachelor's degrees with majors in four areas: Accounting, Management, Marketing and Finance. Graduates from these programs are prepared in modern administration and business techniques to join the world of private and public business in fields such as management of human resources, auditing, accounting, preparation of financial accounts, marketing, and research on economic changes. **The four bachelor's degrees are accredited by the Accreditation Council for Business Schools and Programs (ACBSP).**

MISSION

In accord with UPRA's mission, the Department of Business Administration aspires to form citizens who are capable of making ethical and well-informed decisions that result in professional benefit and the improvement of society in general; citizens who are committed with the necessary integrity to promote respect for cultural and human diversity in social organizations and businesses within and without our country

The faculty of the Business Administration Department exists to:

- provide undergraduate students with an up to date education in business administration.
- promote the effective administration of organizations.
- encourage research and creative activity.
- add ethical, social and professional values by means of a dynamic and relevant curriculum, using traditional and non-traditional methods of assessment.
- encourage our constituents to actively participate in Departmental affairs.

VISION

To be recognized as the best Business Administration program by providing a student centered, innovative education emphasizing social responsibility which is dynamic and responsive to the needs of our constituencies

**BACHELOR'S DEGREE IN BUSINESS ADMINISTRATION
WITH A CONCENTRATION IN ACCOUNTING⁶
(0302)**

The study of accounting provides students with ample knowledge, enabling them to assume a variety of responsibilities within an enterprise. Accountants interpret financial transaction and translates them to the language of accounting, providing relevant data through financial reports. This information allows users to make a variety of decisions.

A person trained in accounting may work in banking, private enterprises (profit or non-profit), public service or in public accounting firms. Employment opportunities in accounting include certified public accountants, comptrollers, bank officers, cost managers, tax specialists, budget managers, financial analysts, government accountants and self employment. Many accountants reach mid and high level positions in a variety of organizations. **The program is accredited by the Accreditation Council for Business Schools and Programs (ACBSP).**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3101	Basic Spanish I	3
INGL 3101 ⁷	Basic English I	3
INGL 3113	Basic English I Laboratory	0
MATE 3011	Quantitative Methods I	3
CONT 3005 ⁸	Introduction to the Elements Accounting I	4
REHU 4409	Human Relations	3
Total		16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3102	Basic Spanish II	3
INGL 3102**	Basic English II	3

⁶ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

⁷ Students who score above 580 on the English language part of the College Board Examination will take INGL 3103 - Intermediate English I and INGL 3104 - Intermediate English II. This sequence does not require the oral practice laboratory.

⁸ Students are discouraged from taking more than three accounting courses per semester.

INGL 3114**	Basic English II Laboratory	0
MATE 3012	Quantitative Methods II	3
CONT 3006	Introduction to the Elements of Accounting II	4
ADMI 3005	Administrative Theory	3
Total		16

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CONT 3007	Intermediate Accounting I	4
ESTA 3001	Business Statistics I	3
ESPA 3215	Business Expression and Communication	3
MATE 3013	Quantitative Methods III	3
INCO 3007	Accelerated Course in Business Communication	4
CISO 3121	Intr. Social Sciences I	3
Total		20

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CONT 3008	Intermediate Accounting II	4
ESTA 3002	Business Statistics II	3
FINA 3006	Business Finance	3
ECON 3021	Principles of Economics I	3
INGL 4006 /or	Report Writing	3
INGL 3093	or Conversational English	
Total		16

THIRD YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CONT 3025	Cost Accounting I	4
CONT 3035	Advanced Accounting	4
MERC 3115	Principles of Marketing	3
ECON 3022	Principles of Economics II	3

HUMA 3101	Western Civilization I	3
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CONT 4039	Puerto Rico Income Taxes	4
ADMI 4019	Social Responsibility of Free Enterprise	3
FINA 3007	Money and Banking	4
SICI 4008	Intro. to Business Data Processing	4
	Elective in Humanities	3
Total		18

FOURTH YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CONT 4016	Recent Developments in Accounting	3
DEME 4005	Business Law	4
	General Education course in Science ⁹	3**
	Free Elective	3
	Free Elective	3
Total		16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CONT 4017	Auditing Accounts and Systems	3
	Guided Elective ¹⁰	3 or 4
	General Education course in Science	3
	Free Elective	3
	Free Elective	3
Total		15 or 16

⁹ General Education courses will be selected as identified from section General Education Program.

¹⁰ CONT 4036 (Management Accounting) is not considered a guided elective for accounting majors. It may only be counted as a free elective course.

GUIDED ELECTIVES

CODE	DESCRIPTION	CREDITS
CONT 4038	Federal Income Tax	4
CONT 4005	Cost Accounting II	4
CONT 4046	Accounting for Government and Non- profit Organizations	3

**BACHELOR'S DEGREE IN BUSINESS ADMINISTRATION
WITH A CONCENTRATION IN FINANCE¹¹
(0304)**

The field of finance is broad and dynamic since it affects the lives of all persons and organizations. In general terms, finance is defined as the art and science that handles money to make the best decisions on its use. Therefore, it encompasses various fields of study and a wide range of professional opportunities. **The program is accredited by the Accreditation Council for Business Schools and Programs (ACBSP).**

Areas of study include insurance, corporate finance, financial markets, banking, real estate, international finance and investments. Professional opportunities in the field include financial analyst, finance manager, cash manager, credit manager, budget manager, insurance broker, real estate broker, bank manager, accounts analyst and investment portfolio manager.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3101	Basic Spanish I	3
INGL 3101 ¹²	Basic English I	3
INGL 3113	Basic English I Laboratory	0
MATE 3011	Quantitative Methods I	3
REHU 4409	Human Relations	3
CONT 3005	Introduction to the Elements of Accounting I	4
Total		16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3102	Basic Spanish II	3
INGL 3102*	Basic English II	3
INGL 3114*	Basic English II Laboratory	0
MATE 3012	Quantitative Methods II	3
CISO 3121	Intr. Social Sciences I	3

¹¹ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

¹² Students who score above 580 on the English language part of the College Board Examination will take INGL 3103 - Intermediate English I and INGL 3104 - Intermediate English II. This sequence does not require the oral practice laboratory.

CONT 3006	Introduction to the Elements of Accounting II	4
Total		16

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ADMI 3005	Administrative Theory	3
ESTA 3001	Business Statistics I	3
ECON 3021	Principles of Economics I	3
INCO 3007	Accelerated Business Communication	4
MATE 3013	Quantitative Methods III	3
ESPA 3215	Business Expression and Communication	3
Total		19

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
FINA 4016 ¹³	Real Estate	3
ESTA 3002	Business Statistics II	3
FINA 3006	Business Finance	3
INCO 4006	Report Writing	3
or INGL 3093	Conversational English	
HUMA 3101	Western Culture I	3
Total		15

¹³ Students are discouraged from taking more than three finance courses per semester.

THIRD YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
FINA 3005	Introduction to Insurance	3
FINA 4037	Investments	3
MERC 3115	Principles of Marketing	3
ECON 3022	Principles of Economics II	3
	Elective in Humanities	3
	Total	15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
	Guided Elective	3 or 4
FINA 4009	Credit and Collection	3
ADMI 4019	Social Responsibility of Free Enterprise	3
FINA 3007	Money and Banking	4
SICI 4008	Intro. to Business Data Processing	4
	Total	17 or 18

FOURTH YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
FINA 4015	Bank Management	3
DEME 4005	Business Law	3
	General Education in Science ¹⁴	3
	Free Elective	3
	Free Elective	3
	Total	16

¹⁴ General Education courses will be selected as identified from section General Education Program.

Second Semester

CODE	DESCRIPTION	CREDITS
	Guided Elective	3
	Guided Elective	3
	General Education in Science**	3
	Free Elective	3
	Free Elective	3
	Total	15

GUIDED ELECTIVES IN FINANCE

CODE	DESCRIPTION	CREDITS
BASE 2007	Analysis of Financial Statements	3
CONT 4036	Managerial Accounting	4
FINA 4005	Life, Health and Retirement Insurance	3
FINA 4039	Public Finance	3
FINA 4050	Financial Markets	3

**BACHELOR'S DEGREE IN BUSINESS ADMINISTRATION
WITH A CONCENTRATION IN MANAGEMENT¹⁵
(0305)**

The field of management includes activities related to administration and management of organizations. Management is a continuous activity which involves attaining important organizational objectives through administrative functions. A manager plans, organizes and distributes human and non-human resources influences and controls the activities of the organization. Graduates from this program are prepared in modern administration techniques and are ready to join public and private enterprises. Prospective employment opportunities in the field include supervising and management positions in private organizations, government and profit and non-profit commercial enterprises. **The program is accredited by the Accreditation Council for Business Schools and Programs (ACBSP).**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3101	Basic Spanish I	3
INGL 3101 ¹⁶	Basic English I	3
INGL 3113	Basic English I Laboratory	0
MATE 3011	Quantitative Methods I	3
SICI 4008	Electronic Processing of Business Data	4
REHU 4409	Human Relations	3
Total		16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3102	Basic Spanish II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English II Laboratory	0
MATE 3012	Quantitative Methods II	3
HUMA 3101	Western Culture I	3
ADMI 3005	Administrative Theory	3
Total		15

¹⁵ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

¹⁶ Students who score above 580 on the English language part of the College Board Examination will take INGL 3103 - Intermediate English I and INGL 3104 - Intermediate English II. This sequence does not require the oral practice laboratory.

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CONT 3005	Introduction to the Elements of Accounting I	4
ESTA 3001	Business Statistics I	3
MATE 3013	Quantitative Methods III	3
ESPA 3215	Business Expression and Communication	3
INCO 3007	Accelerated Course in Bus. Communication	4
	Guided Elective	3
	Total	20

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CONT 3006	Introduction to the Elements of Accounting II	4
ESTA 3002	Business Statistics II	3
ECON 3021	Intro. to Economics	3
MERC 3115	Principles of Marketing	3
INCO 4006 or INGL 3093	Report Writing or Conversational English	3
	Total	16

THIRD YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
FINA 3006	Business Finance	3
ECON 3022	Principles of Economics II	3
CISO 3121	Intro. To Social Sciences I	3
REHU 4405	Managing Human Resouces	3
	Guided Elective	3
	Total	15

SECOND SEMESTER		
CODE	DESCRIPTION	CREDITS
FINA 3007	Money and Banking	4
CONT 4036	Managerial Accounting ¹²	4
	Elective in Humanities**	3
REHU 4427	Labor Legislation	3
	Guided Elective	3
	Total	17

FOURTH YEAR		
FIRST SEMESTER		
CODE	DESCRIPTION	CREDITS
ADMI 4019	Social Responsibility of Free Enterprise	3
DEME 4005	Business Law	4
	Guided Elective	3
	General Education in Science ¹⁷	3
	Free Elective	3
	Free Elective	3
	Total	19

SECOND SEMESTER		
CODE	DESCRIPTION	CREDITS
ADMI 4007	Strategic Management	3
	General Education in Science	3
	Free Elective	3
	Free Elective	3
		3
	Total	12

¹⁷ General Education courses will be selected as identified from section General Education Program.

GUIDED ELECTIVES IN MANAGEMENT

CODE	DESCRIPTION	CREDITS
GERP 2005	Management Production	3
PSIC 3116	Industrial Psychology	3
REHU 4406	Labor Relations	3
REHU 4407	Compensation Systems	3
REHU 4425	Human Behavior in the Organization	3
REHU 4426	Collective Bargaining	3
MERC 4027	Publicity Advertising	3

**BACHELOR'S DEGREE IN BUSINESS ADMINISTRATION
WITH A CONCENTRATION IN MARKETING¹⁸
(0305)**

Marketing means planning and developing a product or service, setting its price, promoting it and establishing its distribution, with the purpose of meeting the needs and desires of individuals and organizations. Some areas of study are store management, sales techniques, advertising, public relations, market research and international marketing. Professional opportunities in this field include marketing manager, public relations officer, sales manager, and market researcher. This program offers an internship program for outstanding students. **The program is accredited by the Accreditation Council for Business Schools and Programs (ACBSP).**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3101	Basic Spanish I	3
INGL 3101 ¹⁹	Basic English I	3
INGL 3113	Basic English I Laboratory	0
MATE 3011	Quantitative Methods I	3
REHU 4409	Human Relations	3
SICI 4008	Intro. to Business Data Processing	4
Total		16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3102	Basic Spanish II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English II Laboratory	0
MATE 3012	Quantitative Methods II	3
ADMI 3005	Administrative Theory	3
MERC 3115	Principles of Marketing	3
Total		15

¹⁸ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

¹⁹ Students who score above 580 on the English language part of the College Board Examination will take INGL 3103 - Intermediate English I and INGL 3104 - Intermediate English II. This sequence does not require the oral practice laboratory.

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CONT 3005	Introduction to the Elements of Accounting I	4
ECON 3021	Principles of Economics I	3
MATE 3013	Quantitative Methods III	3
ESPA 3215	Business Expression and Communication	3
INCO 3007	Accelerated Course in Bus. Communication	4
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CONT 3006	Introduction to the Elements of Accounting II	4
ECON 3022	Principles of Economics II	3
MERC 4027	Publicity Advertising	3
ESTA 3001	Business Statistics I	3
INCO 4006 or INGL 3093	Report Writing or Conversational English	3
Total		16

THIRD YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MERC 4216	Principles and Practices of Sales	3
ESTA 3002	Business Statistics II	3
FINA 3006	Business Finance	3
HUMA 3101	Western Civilization I	3
CISO 3121	Intr. to Social Sciences	3
	Guided Elective	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MERC 4217	Consumer Behavior	3
MERC 4005	International Marketing ²⁰	3
FINA 3007	Money and Banking	4
	Elective in Humanities ²¹	3
	Free Elective	3
	Total	16

FOURTH YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
MERC 4007	Research in Marketing	3
ADMI 4019	Social Responsibility of Free Enterprise	3
	General Education in Science	3
	Guided Elective	3
	Free Elective	3
	Total	15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
DEME 4005	Business Law	4
	Guided Elective	3
	General Education in Science**	3
	Free Elective	3
	Free Elective	3
	Total	16

Total credits: 129

²⁰ Students are discouraged from taking more than three marketing courses per semester.

²¹ General Education courses will be selected as identified from section General Education Program.

GUIDED ELECTIVES IN MARKETING

CODE	DESCRIPTION	CREDITS
MERC 4006	Art of Sales	3
MERC 4036	Public Relations	3
MERC 4215	Retail Management	3
MERC 4219	Intermediate Marketing	3
MERC 4235	Marketing Internship	3

FACULTY

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Betancourt García, Ángel R., Ph.D., *Assistant Professor*, Doctor of Entrepreneurship and Management, Human Resources, Universidad Interamericana de Puerto Rico, Recinto de San Germán.

Cabán Mercado, Edgardo, M.B.A., *Professor*, Master of Business Administration, Industrial and Interpersonal Relations, Universidad Interamericana de Puerto Rico.

De los Santos Silva, Luis R., M.B.A., C.P.A., *Professor*, Master of Business Administration, Universidad de Puerto Rico; Master in Education, Lehigh University; Certified Public Accountant.

Fabián Maldonado, María, J.D., *Assistant Professor*, Juris Doctor, Escuela de Leyes, Universidad Interamericana de Puerto Rico; Doctoral Candidate of Philosophy in Law, Morality and Politics, Universidad Complutense de Madrid.

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Hernández Roldán, Luis A., M.P., *Assistant Professor*, Master of Economic Planning, Universidad de Puerto Rico.

Juan Morales, Miguel A., M.B.A., *Professor*, Master of Business Administration, Universidad Interamericana de Puerto Rico.

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Negrón Maldonado, Claribel, M.B.A., *Assistant Professor*, Master of Business Administration, Accounting, Universidad Interamericana de Puerto Rico.

Pérez Riestra, Rosa N., Ph D. *Associate Professor*, Doctor of Practical Philosophy, Universidad Complutense, Madrid; Master of Business Administration, Universidad de Puerto Rico.

Quiñones Pérez, Juan A., M.P., *Assistant Professor*, Master of Planning, Universidad de Puerto Rico

Rodriguez Pérez, Elsie H., M.B.A., *Assistant Professor*, Master of Business Administration, Finance and Accounting, Universidad Interamericana de Puerto Rico.

Velázquez Vera, Luis, M.P.A, *Assistant Professor*, Master in Public Administration, Personnel Administration, Universidad de Puerto Rico.

LIST OF COURSES

ADMI

ADMI 3005: ADMINISTRATIVE THEORY; three (3) credits, three (3) contact hours per week. The study of administration as a coordination process, as well as the functions and procedures inherent in this process. The different approaches to the study of management; with special emphasis on the behavioral scientists approach. Problems in relation to responsibility, authority, organization and ethics. Problems of centralization and decentralization, human and group behavior within the organization. Emphasis is given to relations between individuals and groups in the process of administration, planning, organization, direction and control.

ADMI 4007: STRATEGIC MANAGEMENT; three (3) credits, three (3) contact hours per week. Introduction to a comprehensive, conceptual and analytical decision process to help the enterprise evaluate its current condition, analyze environmental forces, including the competition, and to translate that information into objectives and strategies that will allow the company to compete efficiently. Emphasis is on the responsibility of management in the development of programs designed to keep business competitive in the long run.

ADMI 4019: THE SOCIAL RESPONSIBILITY OF FREE ENTERPRISES; three (3) credits, three (3) contact hours per week. Students study the responsibility of corporations towards society. Behavioral, legal, political and economic patterns, along with the social pressures that force businesses to contribute to the improvement of the social ecosystem are intensely studied.

BASE

BASE 2007: FINANCIAL STATEMENT ANALYSIS, three (3) contact hours per week. Pre-requisite: CONT 3006. A course designed to develop the analytical ability in finance so that there is a better comprehension of the analysis made with financial information which banks and credits institutions need to evaluate. It includes asset performance, cash analysis, cost-profit-volume analysis, financial position, working capital, decrease of increase, of noncurrent assets investments, changes in financial position, and ratio analysis.

CONT

CONT 3005: INTRODUCTION TO THE ELEMENTS OF ACCOUNTING I, four (4) credits, four (4) contact hours per week. The course familiarizes the student with the nature, scope and objectives of accounting and how its development had been affected by the different sector of society. The theory and methodology of accounting is studied emphasizing in the

recognition of income and expenses, and the statements used for the presentation of the financial information. The student relates with the uses and importance of accounting for the owners, management, creditors and general public, who had diverse interests in the financial information.

CONT 3006: INTRODUCTION TO THE ELEMENTS OF ACCOUNTING II, four (4) credits, four (4) contact hours per week. Pre-requisite: CONT 3005. Includes a discussion of basic theory and illustrative problems on source and uses of funds, cash flow, analysis of financial statements, cost systems (job order, process and standard) and consolidated statements. Income tax problems will also be considered. Controversial issues such as price-level changes, income tax allocations and presentation of long-term leases in the balance sheet will also be discussed.

CONT 3007: INTERMEDIATE ACCOUNTING I, four (4) credits, four (4) contact hours per week. Pre-requisite: CONT 3006. The study and analysis of accounting principles and procedures related to recording adjusting entries and the recording, valuation, classification, and asset disclosure in financial statements.

CONT 3008: INTERMEDIATE ACCOUNTING II, four (4) credits, four (4) contact hours per week. Pre-requisite: CONT 3007: A continuation of the study of accounting problems related to recording, valuation and presentation on the balance sheet statement of the following items: fixed assets, investments, funds, reserves and short-term and long-term liabilities. The preparation and uses of variation analysis for working capital will be studied and the theories and basic principles involved in determining net income will be the object of a critical review.

CONT 3025: COST ACCOUNTING, four (4) credits, four (4) contact hours per week. Pre-requisite: CONT 3006. Study of the principles of cost accounting for different costs and their functions in business enterprises decisions. Study of the different techniques for cost accounting applicable to the various forms of production. The various budget principles and methods to establish the cost basis are studied. The routine procedures to use in compiling data for costs are analyzed.

CONT 3035: ADVANCED ACCOUNTING, four (4) credits, four (4) contact hours per week. Pre-requisite: CONT 3008. A study of the theory and discussion of special problems related to partnerships, installment sales, consignments, consolidated financial statements, subsidiaries, branches, estates and trusts. Principles and concepts of government and institutional accounting as well as non-profit organizations are discussed.

CONT 4005: COST ACCOUNTING II, four (4) credits, four (4) contact hours per week. Pre-requisite: CONT 3025. The study of cost as a means of problem-solving and decision-making

to as well as a means to achieve effective planning and control of costs. These include control of static and flexible budgets, standard costs, analysis of marginal income, analysis of distribution and administrative costs. Inventory controls and procedures, labor and indirect costs are also emphasized. The differential costs, the usefulness of graphs for presenting cost information; available alternatives are also studied. A series of analytical techniques that are needed by the accountant to provide information to management

CONT 4016: RECENT DEVELOPMENTS IN ACCOUNTING, three (3) credits, three (3) contact hours per week. Prerequisite: CONT 3008. Discussion of the analysis of postulates, currents and controversial issues in the field of accounting. Emphasis on the examination of generally accepted principles of accounting recently adopted by the profession as expressed in current statements and publications.

CONT 4017: AUDITING ACCOUNTS AND SYSTEMS; three (3) credits, three (3) contact hours per week. Pre-requisite: CONT 4016. The study of contemporary auditing practices and their application. It includes the purpose of an audit by a certified public accountant (CPA), the evaluation of the system of internal controls, generally accepted auditing standards, ethics of the profession, evidence, the use of statistical sampling and the computer by the auditor

CONT 4036: MANAGERIAL ACCOUNTING; four (4) credits, four (4) contact hours per week. Pre-requisite: CONT 3006. Introduction to the uses of accounting for internal managerial purposes, explanation of the interpretation and uses by management in the planning and controlling business activities. Although emphasis is given to the use of accounting data by management, its use by investors and potential investors is also explained whenever deemed appropriate. Emphasis will be given to the following matters: internal control and reports to management, price-level changes, sources and uses of funds, cost concepts and application, profit planning, cost volume profit relationship and standard and variable costs.

CONT 4038: FEDERAL TAXES, four (4) credits, four (4) contact hours per week. Pre-requisite: CONT 3006. An analysis of the federal income tax law. Study of the most important dispositions of the federal income tax laws and its stipulations in regards to individuals and partnerships. The impact of the law on the decision-making process. Various tax methods are compared. It includes inclusions and exclusions from gross income, permissible deductions, capital assets, retention in the origin, credits for taxes paid to other countries and the determination of the taxes to be paid.

CONT 4039: PUERTO RICO INCOME TAXES; four (4) credits, four (4) contact hours per week. Pre-requisite: CONT 3006. The course covers the Puerto Rico Income Tax Act and Regulations covering taxable income. It includes the following topics: inclusions and

exclusions; allowable deductions; flexible depreciation, basis for determining gain or loss; capital gain and losses; credits; computation of surtax and normal tax as affecting individuals, partnership and corporations. It also covers practical problems and the preparation of returns.

CONT 4046: ACCOUNTING FOR NONPROFIT ORGANIZATIONS; three (3) credits, three (3) contact hours per week. Pre-requisite: CONT 3006. A comprehensive study of accounting principles and financial reports of government agencies, colleges and universities, hospitals and health services and nonprofit entities.

DEME

DEME 4005: BUSINESS LAW, four (4) credits, four (4) contact hours per week. Study and analysis of the legislation, doctrines and jurisprudence that regulate commercial transactions in Puerto Rican society. The integration of these norms within the Puerto Rican Laws, which include topics and doctrines from both Common Law and Civil Law.

ECON

ECON 3021: PRINCIPLES OF ECONOMICS I, three (3) credits, three (3) lecture hours per week. Introduction to the fundamentals of the economy and the methods for the economic analysis. The purpose of the course is to create in the student conscience and understanding of the economic world in which he lives in and the problems it expose. Introduces the modern microeconomic analysis. Examines the nature of the economic problem, the consumer election theory, production analysis and the market mechanisms as instruments to order the economic activity.

ECON 3022: PRINCIPLES OF ECONOMICS II, three (3) credits, three (3) lecture hours per week. Pre-requisite: ECON 3021. This course is a continuation of the introductory business economics course. It includes topics, such as, gross national products and its measurements, analysis of the macroeconomic variables and their influence in determining levels of employment, production, etc. Monetary and banking institutions, monetary policies, public finance, fiscal policy, important aspects of economic development and international economics are also studied.

ESTA

ESTA 3001: BUSINESS STATISTICS I, three (3) credits, three (3) contact hours per week. An introduction to the concepts of business statistics. The course includes topics such as frequency distributions, descriptive statistics, index numbers, probability and the concept of

mathematical expectation. Emphasis is placed on problems involving business decision-making under conditions of risks.

ESTA 3002: BUSINESS STATISTICS II, three (3) credits, three (3) contact hours per week.

Pre-requisite: ESTA 3001. A continuation of Business Statistics I. It discusses statistical sampling, testing of hypotheses, estimation, regression, analysis, simple and multiple correlation and other methods of statistical business forecasting.

FINA

FINA 3005: INTRODUCTION TO INSURANCE, three (3) credits, three (3) contact hours per week. Problems inherent to the insurance field and its influence on the individual, on the economy and on society. Different techniques that can be used to deal with high risk. The handling of insurable risks through insurance policies, and the relationship of risk and public policy.

FINA 3006: BUSINESS FINANCE, three (3) credits, three (3) contact hours per week. Pre-requisite: CONT 3006. A study of the process of raising, administering and distributing funds of an enterprise. A study of the different types of businesses with special emphasis on the modern corporation. Analysis of the stages of promotion, organization, expansion and liquidation of the corporation.

FINA 3007: MONEY AND BANKING, four (4) credits, four (4) contact hours per week. Pre-requisites: ECON 3022, MATE 3011, CONT 3006. The course has the objective of providing the student with the fundamental principles that try to explain the economic activity within the context of the monetary object. It includes fundamentally the following topics: concept, development and economic importance of the monetary object, financial institutions and its functions in the economic development and growth, structure and behavior of the banking industry, central banking and monetary policy, economic and monetary theory and general aspects of the international monetary system.

FINA 4005: LIFE HEALTH AND RETIREMENT INSURANCE: three (3) credits, three (3) hours of lecture per week. Prerequisite: FINA 3005. Insurance techniques as means of protecting the human being against economic loss due to mental, physical incapacity or age. Discussion of benefits as well as risk situations, rates and legal considerations.

FINA 4009: CREDIT AND COLLECTION: three (3) credits, three (3) hours of lecture per week. The study of the nature and the role of credit, the management of credit, function of credit, credit investigation, analysis, control and the function of collection. It explains the place credit and collection occupies in modern business and its effect on consumerism. The

fluctuations of business, commercial activities and other effect over the economy of the nation in general are studied.

FINA 4015: BANK ADMINISTRATION: three (3) credits, three (3) hours of lecture per week. Prerequisite: FINA 3007 y CONT 3006. A study of the financial policies of an individual bank in contrast with the banking system. Emphasis on policies and not on routine procedures. Analysis of the sources of bank funds with special emphasis on the use of such funds. A brief historical background of banking institutions.

FINA 4016: INTRODUCTION TO REAL ESTATE, three (3) credits, three (3) contact hours per week. Prerequisite: ECON 3021. A basic course in the principles and practices of the real estate business and the socioeconomic forces that underlie it.

FINA 4037: INVESTMENTS, three (3) credits, three (3) contact hours per week. Pre-requisite: FINA 3006. Analysis and interpretation of financial sources of information through the study and analysis of investment alternatives emphasizing risk and other factors. Characteristics of private and institutional investors and analysis of their role through modern investigative method are studied along with, stock market conditions, characteristics and functions.

FINA 4039: PUBLIC INCOME, three (3) credits, three lecture hours per week. Pre-requisites: ECON 3022 and FINA 3006. Study of the function of assignment, distribution and stabilization of the public income in the modern state, and its effects in private enterprise: analysis of the public budget policies from the point of view of the revenues and expenditures; taxing theories, public expenditures, incidence and effect of budgetary measures; public debt and its effects in the decision-making process of the private enterprise.

FINA 4050: FINANCIAL MARKETS, three (3) credits, three (3) contact hours per week. Pre-requisites: FINA 3006, FINA 3007. This course analyzes the structure of financial markets and the application of the latest monetary and economic theories of financial markets. It includes, among others, the following topics: the role of theory and financial policy, implications of the market structure, the interrelation between real and financial variables in the economic activities and other related topics.

GERP 2005: PRODUCTION MANAGEMENT, three (30) credits, three (3) lecture hours per week. The application of modern management methods in manufacturing enterprises is studied. Problems related to purchases, inventories, production and quality controls, price fixing, administration of salaries and incentives are discussed. The course also studies the establishment of production patterns, plan design and time and movement studies.

MERC

MERC 3115: PRINCIPLES OF MARKETING, three (3) credits, three (3) contact hours per week. Introduction to the study of the marketing process as a management function. Emphasis in the analysis, planning, implementation, organization and control of marketing programs.

MERC 4005: INTERNATIONAL TRADE, three (3) credits, three (3) contact hours per week.
Pre-requisites: MERC 3115. The course studies the problems that occur in the market through national barriers, for example the marketing problems that occur within a number of markets of different nations. The situation of domestic firms that export, like those companies that assemble or produce in foreign markets. This course also studies the necessary functions for the distribution of goods and services from the exporter to international organizations.

MERC 4006: ART OF SALESMANSHIP, three (3) credits, three (3) contact hours per week.
Pre-requisite: MERC 3115. Analysis of personal sales as a marketing phase. Analysis of the modern techniques of sales. It emphasizes the presentation, how to deal with clients, closing a deal and the role of sales in the economic process. Development a positive attitude towards the selling profession.

MERC 4007: MARKETING RESEARCH, three (3) credits, three (3) contact hours per week.
Pre-requisites: MATE 3011, MERC 3115 and ESTA 3001. Study of the necessary functions for the gathering, classification, presentation and systematic analysis of relevant data in a precise and objective manner of problems related to the marketing of existing or new goods and services.

MERC 4027: PUBLICITY ADVERTISING, three (3) credits, three (3) contact hours per week. **Pre-requisite:** MERC 3115. Analysis, design, implementation and control of advertising programs. Emphasis is on the design and evaluation of creative strategies.

MERC 4036: PUBLIC RELATIONS, three (3) credits, three (3) contact hours per week. Presentation and study of public relations as a professional activity for the promotion of business. The identification of groups with possible relationship with business as well as the empirical determination for the public relations program, its development and evaluation and the use of appropriate means for obtaining an assuring a positive image of the company in the community of market it serves.

MERC 4215: RETAIL SALES ADMINISTRATION, three (3) credits, four (4) contact hours per week. **Pre-requisite:** MERC 3115, MERC 4217. Development and implantation of marketing strategies in the context of the retail business. Emphasis in the effective analysis

of the environment in which the business competes and the marketing strategies that arise with the changes in this environment.

MERC 4216: PRINCIPLES AND PRACTICES OF SELLING, three (3) credits, three (3) lecture hours per week. Pre-requisite: MERC 3115, MERC 4006. Study of theories and practices of personal sales at the management level. Emphasis in the study of the behavior of salesperson, the external factors which affects directly or indirectly the sales process and effective sales strategies. Introduction sales methods and techniques and verbal and non-verbal communication.

MERC 4217: CONSUMER BEHAVIOR, three (3) credits, three (3) contact hours per week. Pre-requisite: MERC 3115. Analysis of the prevalent theories of consumer behavior. Study methods to examine this behavior that will help in marketing decision making.

MERC 4219: INTERMEDIATE MARKETING, three (3) credits, three (3) contact hours per week. Pre-requisites: MERC 3115. Policies, strategies, and tactics used in marketing; adaptation of management functions to the field of marketing: planning, organization, implementation and control of products related to goods and/or services, sales prices promotion.

MERC 4235: INTERNSHIP IN MARKETING, three (3) credits, three (3) contact hours per week. Pre-requisites: Minimum of nine (9) credits approved in marketing courses (MERC). Practical experience of the theories and concepts related to effective marketing administration in business learned in class through 180 hours worked in an assigned business under the advice and supervision of a professor.

REHU

REHU 4405: MANAGEMENT OF HUMAN RESOURCES, three (3) credits, three (3) contact hours per week. Pre-requisites: ADMI 3005. Introduction to strategies, practices, procedures and legal aspects related to the efficient utilization of human resources in organizations. Study of the theories, methods and techniques of human resources management's function within domestic and global economic context.

REHU 4406: LABOR RELATION, three (3) credits, three (3) contact hours per week. Pre-requisites: REHU 4405. Analysis of the dynamics between labor unions and employers in organization in Puerto Rico and the United States, from their origins to the present. Emphasis on the study of the structures involved in labor relations, as well as the strategies used by each side in realizing their functions. Introduction with the basic processes of collective bargaining, the administration of agreements and its relationship with the non-union sector.

REHU 4407: COMPENSATION SYSTEMS, three (3) credits, three (3) contact hours per week. Pre-requisites: REHU 4405. Introduction to the design, implantation and administration of an efficient system of compensation. Emphasis on organizational diagnostics in terms of internal and external influences as preceding the design and administration of a compensation system.

REHU 4409: HUMAN RELATIONS, three (3) credits, three (3) contact hours per week. An objective approach to the nature of human relations. Personality factors in human relations. The framework of human relations problems: formal organization, informal organization, labor unions, etc. The interaction between management, human relations and productivity: effective supervision; communication with employees; group dynamics; development of participation; procedures and work systems; trends in human relations.

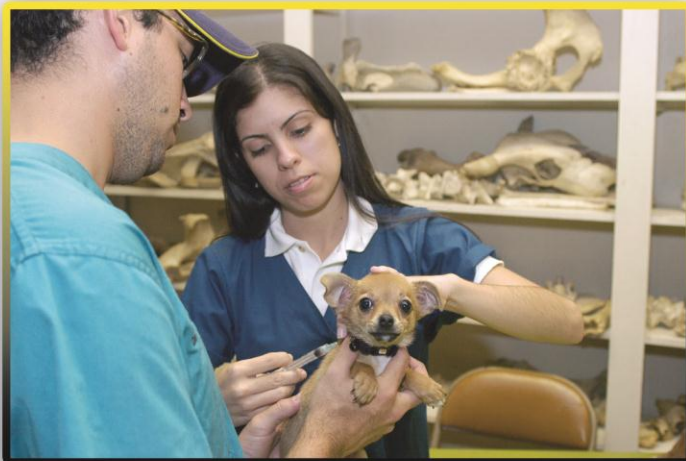
REHU 4425: HUMAN BEHAVIOR IN THE ORGANIZATION, three (3) credits, three (3) contact hours per week. Through the discussion of readings and real cases the student is trained in the systematic analysis of the problems and situations involving the human element in the business enterprise. The consistencies and inconsistencies of external pressures are observed, how these affect the feeling of the workforce, and how they are reflected in their behavioral patterns. For example, the authoritarian management style is examined versus that which allows the participation of subordinates in decision-making; the emotional problems posed by an organizational environment.

REHU 4426: COLLECTIVE BARGAINING, three (3) credits, three (3) contact hours per week. Historical background of labor relations, collective bargaining and its function in modern society. General principles and practices of collective negotiations in the public and the private sectors. Problems of collective negotiations. Contents of the agreement, stages and employer and labor union strategies in negotiation. Discussion and administration of the agreement: its interpretation, realization, the solution of complaints and grievances, including arbitration.

REHU 4427: LABOR LEGISLATION, three (3) credits, three (3) contact hours per week. The course on legislation protecting labor has the purpose of acquainting the student with all the standing social legislation that protects the salaried worker, independently of their being unionized or not. The application and impact of these laws in public private enterprises will be studied. The responsibilities and obligations of the business manager will also be considered.



BIOLOGY



**BACHELOR'S DEGREE IN SCIENCE
WITH A MAJOR IN MICROBIOLOGY
(4506)**

DEPARTMENT MISSION

Develop a competent professional in the Biology field.

PROGRAM MISSION

Formation of a holistic human being; an educated citizen conscious of its ethical, social and cultural obligation. A professional with the knowledge, skills and necessary attitude to perform successfully in the microbiology field, in scientific research or any study area the student wishes to continue after finishing studies.

PROGRAM DESCRIPTION

The bachelor's degree in science with a major in Microbiology is centered in the study of single-cell organisms and colonies, the genetic sub-cellular components and its interactions with human beings and other lifeforms. Includes the teaching of microbial genetics, molecular biology, cellular physiology, virology, microbial pathogens, microbiology and environmental ecology, immunology, statistics, computing and related laboratory methods emphasizing in microscopy.

The program teaches and guides the student to perform in the work force, specially in technology industries, pharmaceuticals and food production laboratories. It also offers the student an undergraduate formation needed to continue academic and professional studies.

The curricular sequence of the program allows the student to choose an area to be emphasized during their years of study. These areas are: medical microbiology, industrial and environmental microbiology. Once the students enter the program their area of emphasis is determined based on the assessed achievements of the student.

PROGRAM GOALS

The bachelor's degree in Science with a major in Microbiology with its three content areas aspires to prepare students so they are able to:

1. Become an effective influence as members of the Puerto Rican society; a responsible citizen.
2. Be prepared and perform effectively in the microbiology field.
3. Apply the necessary skills to find the solution to problems in the microbiology field.

4. Have the required skills and necessary knowledge to continue studies in areas related to microbiology.

GRADUATE STUDENT PROFILE

1. Efficiently perform as professionals in the field of microbiology in scientific research as well as in quality control.
2. Learn and use the essential equipment in the field of microbiology.
3. Learn and use advanced technology in biotechnology.
4. Analyze scientific data and reach conclusions in order to make accurate decisions.
5. Apply microbiology processes for the solution of problems in short and long terms.
6. Learn and use emerging technology in the electronic communication areas.
7. Speak fluently, correctly and professionally, in English as in Spanish.
8. Continue graduate studies.

STUDENT DUTIES

1. Complete the proposed curricular sequence.
2. Comply with the Academic counseling process.
3. Have their lab coat and safety goggles to be used in the laboratory.
4. Maintain the dress code during the time spent in the laboratory, that is; lab coat and safety goggles, closed shoes and clothes covering the legs.
5. Be available to perform test readings or cultures outside of the regular class periods.
6. Be available to perform field trips outside of their regular class periods as required in the course.
7. Be available to take departmental exams at a time different from their class period.

JOB OPPORTUNITIES

- Graduate students from the program will be able to work in pharmaceutical industries, agencies related to the environment, food industries and in research and biotechnology. Other areas are biology scientist, management of natural sciences and in high school teaching.
- Once the studies are complete, the graduate student may continue graduate studies in professional or academic health related areas.

FIRST YEAR²²

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
BIOL 3011	General Biology I	4
BIOL 3013	General Biology I Lab	0
QUIM 3001	General Chemistry	4
QUIM 3003	General Chemistry Lab I	0
MATE 3171	Pre-Calculus I	3
ESPA 3101	Basic Spanish I	3
INGL 3101	Basic English I	3
INGL 3113	Basic English I Laboratory	0
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
BIOL 3012	General Biology II	4
BIOL 3014	General Biology II Lab	0
QUIM 3002	General Chemistry II	4
QUIM 3004	General Chemistry Lab II	0
MATE 3172	Pre-Calculus II	3
ESPA 3102	Basic Spanish II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English II Laboratory	0
Total		17

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
BIOL 3731	General Microbiology	4
BIOL 3732	General Microbiology Laboratory	1
QUIM 3461	Organic Chemistry I	3
QUIM 3462	Organic Chemistry I Lab	1

²²As revised in August 2009. students admitted to the program previous to this date will complete their bachelor's degree according to the valid curricular sequence used before August 2009.

CISO 3121	Intro. to Social Sciences I	3
MATE 3031	Calculus I	4
Total		16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
BIOL 4023	Immunology Fundamentals	2
BIOL 4024	Laboratory Immunology Fundamentals	1
QUIM 3463	Organic Chemistry II	3
QUIM 3464	Organic Chemistry II Lab	1
CISO 3122	Introduction to Social Sciences II	3
MATE 3026	Introduction to Computer Assisted Statistics	3
ELECTIVE		3
Total		16

THIRD YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
1 st Content Course Area		3
Industrial Microbiology:		
BIOL 3917	Industrial Bacteriology	
BIOL 3918	Industrial Bacteriology Lab	
Environmental Microbiology:		
BIOL 3930	Environmental Analysis	
Medical Microbiology:		
BIOL 3745	Principles of Medical Mycology	
BIOL 3746	Principles of Medical Mycology Lab	
BIOL 3919	Water Microbiology	3
BIOL 3920	Water Microbiology Laboratory	0
FISI 3011	University Physics I	3
FISI 3013	University Physics Lab I	1
HUMA 3111 ²³	Compendium of Western Culture I and II	3
INGL 3221	Introduction to Literature I	3
Total		16

²³ At UPRA students may choose HUMA 3101, , HUMA 3201 instead of HUMA 3111.

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
2 nd Content Course Area		3
Industrial Microbiology:		
BIOL 3915	Industrial Mycology	
BIOL 3916	Industrial Mycology Lab	
Environmental Microbiology:		
BIOL XXXX	Environmental Micology	
Medical Microbiology:		
BIOL 4426	General Parasitology	
BIOL 4427	Parasitology Laboratory	
BIOL 3907	Molecular Biology	3
BIOL 3908	Laboratory Molecular Biology	0
FISI 3012	University Physics II	3
FISI 3014	University Physics Lab II	1
HUMA 3112 ²⁴	Compendium of Western Culture III and IV	3
INGL 3222	Introduction to Literature II	3
Total		16

²⁴ At UPRA students may choose HUMA 3102 and HUMA 3202 instead of HUMA 3112.

FOURTH YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
3 ^{er} Content Course Area		3
Industrial Microbiology:		
BIOL 3926	Food Microbiology	
Environmental Microbiology:		
BIOL 3747	Microbial Ecology	
BIOL 3748	Microbial Ecology Lab	
Medical Microbiology:		
BIOL 4438	Introduction to Virology	
BIOL 3905	Genetics of Bacteria	3
ESPA 3211	Introduction to Spanish Literature I	3
BIOL 3910	Bioinformatics Seminar	1
ELECTIVES		6
	Total	16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
4 th Content Course Area		3
Industrial Microbiology:		
BIOL 4020	Industrial Process Validation	
Environmental Microbiology:		
BIOL 3733	Environmental Microbiology	
BIOL 3734	Environmental Micro Lab	
Medical Microbiology:		
BIOL 4006	Medical Bacteriology	
BIOL 3207	Introduction to Biotechnology	3
BIOL 3909	Integrating Seminar	1
ESPA 3212	Introduction to Spanish Literature II	3
ELECTIVES		3
	Total	13

FACULTY

Acevedo Santiago, Mari L., Ph.D., *Associate Professor*, Ph.D., Biology and Pharmacology, Cornell University.

Amador Beauchamp, Marilisa, M.S., *Associate Professor*, Master of Science, Microbiology and Medical Zoology, University of Puerto Rico

Arbelo García, José G., M.S., *Professor*, Master of Science, Biology, University of Puerto Rico; ABD/PhD in Environmental Microbiology, Universidad Complutense de Madrid, España

Cardona Custodio, Cynthia, M.S., *Professor*, Master of Science, Biology, University of Puerto Rico

Fernández Rodríguez, José R., M.S., *Associate Professor*; Master of Science, Biology, University of Puerto Rico J.D., Juris Doctor, Interamerican University of Puerto Rico

Mercado Iguina, Edgardo, D.V.M., *Assistant Professor*, Doctor of Veterinary Medicine, Tuskegee Institute, Alabama

Pérez Benítez, Videlia M.S., *Assistant Professor*, Master of Science, Biology, University of Puerto Rico

Pérez González, Juan, M.S., *Assistant Professor*, Master of Science, Biology, University of Puerto Rico

Ramírez Silva, Juan, M.A., *Professor*, Master of Arts, Science Education, University of Puerto Rico

Luis Tomás Ramos Miele, D.V.M., Assistant Professor, Doctor of Veterinary Medicine, Tuskegee Institute, Alabama.

Reyes Medina, Sonia I., M.S., *Professor*, Master of Science, Biology, University of Puerto Rico

Rivera Font, Nancy, M.S., *Assistant Professor*, Master of Science, Anatomy, University of Puerto Rico

Serrano Rivera, Horacio, Ph.D., *Associate Professor*, Philosophy Doctor, Molecular Biology, Universidad Autónoma de Madrid, España. Faculty member Medical Sciences Campus and Collaboration Agreement with the UPR Arecibo Campus.

Serrano Rivera, Servy A., M.S., *Professor*, Master of Science, Microbiology and Medical Zoology, University of Puerto Rico

Vargas Gómez, Raquel G., Ph.D., *Professor*, Doctor of Philosophy, Science Education/Ecology and Environmental Studies, The University of Iowa.

Vega Castillo, Sondra I., M.S., *Assistant Professor*, Master of Science, Biology, University of Puerto Rico, PhD Candidate in Biology, University of Puerto Rico at Río Piedras

LIST OF COURSES

BIOL 1011: HUMAN ANATOMY AND PHYSIOLOGY I, four (4) credits, three (3) contact hours and three (3) laboratory hours per week. Introduction to the study of cellular morphology and physiology. Anatomical, histological and physiological study of the skeletal, muscular and nervous systems. This course is designed for students pursuing an A. D. in Nursing and Therapy.

BIOL 1012: HUMAN ANAT PHYSIOL LAB I, zero (0) credits three (3) contact hours. Complements BIOL 1011.

BIOL 1013: HUMAN ANATOMY AND PHYSIOL II, four (4) credits, three (3) contact hours and three (3) laboratory hours per week. Pre-requisite: BIOL 1011 and 1012: Histological, anatomical and physiological study of the digestive, respiratory, circulatory, endocrine and urogenital systems. Emphasizes the interrelationship of all systems in the coordination of the normal functioning of the body.

BIOL 1014: HUMAN ANATOMY PHYSIOLOGY LAB, zero (0) credits, three (3) contact hours. Complements BIOL 1013.

BIOL 2001: BASIC ELEMENTARY MICROBIOLOGY, four (4) credits, three (3) contact hours and three (3) hours of laboratory per week. A study of the microorganisms that affect man; concepts of asepsis, disinfection and isolation; diagnosis and treatment of diseases. Course designed for students in the Associate Degree in Nursing.

BIOL 2002: MICROBIOLOGY LABORATORY, zero (0) credits, three (3) contact hours. Complements BIOL 2001.

BIOL 3008: BASIC TOPICS IN BIOLOGY, three (3) credits, three (3) contact hours. Includes the basic and modern concepts of cellular aspects, genetics, evolution and ecology; with emphasis given to the topics that benefit or affect man's health. Designed specifically for nursing students.

BIOL 3011: GENERAL BIOLOGY I, four (4) credits, three (3) contact hours. A study of the basic principles that govern organism as a whole living matter, chemistry, the cell, photosynthesis respiration, mitosis, meiosis, Mendelian and molecular genetics and evolution.

BIOL 3012: GENERAL BIOLOGY II, four (4) credits, three (3) contact hour and three (3) hours laboratory per week. Pre-requisite: BIOL 3011. A study of the variety in the animal and plant kingdoms their evolution, growth, nutrition transportation, regulation and ecology.

BIOL 3013: GENERAL BIOLOGY I LAB, zero (0) credits, three (3) contact hours. Complements BIOL 3011.

BIOL 3014: GENERAL BIOLOGY II LAB, zero (0), three (3) contact hours. Complements BIOL 3012.

BIOL 3024: INTRODUCTION TO BIOCHEMISTRY, three (3) credits. Pre-requisites: BIOL3011 and BIOL 3012. This course will study the basic chemical components of living matter, as well as the most important chemical reactions that these components undertake within biological systems. Discussion of fundamental principles will provide students with a global comprehension of the energy flow and metabolism in biological systems. There will be an emphasis on the general regulation mechanisms operating in the metabolic pathways.

BIOL 3075: SEMINAR MEDICAL TOPICS, two (2) credits, two (2) contact hours. Prepares students for the medical science entrance examination requisite: pre-medical students. Seminar prepares student to take medical odontology and medical technology exams. Important areas and scientific concepts included in the test are discussed. Students will practice answering similar exams. Recent literature in the medical field will be discussed, as well as other related courses.

BIOL 3108: UNDERGRADUATE RESEARCH, two (2) credits, six (6) contact hours. Pre-requisite: BIOL 3011-3012. Supervised research in the area of biological science which provides the university student with the training and experience in the application of the scientific method and investigation.

BIOL 3115: GENERAL ECOLOGY, four (4) credits, three (3) lecture hours and three (3) hours of laboratory per week. Pre-requisite: BIOL 3011-3012. A study of the principles that rule the relationship between organisms and their environment, with emphasis placed on the ecological systems present in Puerto Rico and the degrading effects produced by pollution.

BIOL 3116: GENERAL ECOLOGY LABORATORY, zero (0) credits, three (3) contact hours. Complements BIOL 3115.

BIOL 3207: INTRODUCTION TO BIOTECHNOLOGY, two (2) credits, two (2) contact hours. **Pre-requisite:** BIOL 3011. Panoramic view of biotechnology, its history and development, as well as its impact on society. Study of the genetic basis of the function of living organisms and the technology that allows for the development of new types of cells with the ability of manufacturing new commercially important products. Exploration of the various applications of biotechnology.

BIOL 3305: GENETICS, four (4) credits, three (3) contact hours. **Pre-requisites:** BIOL 3011-3012. A study of the fundamental principles of genetics using the concepts of molecular biology, identification, mechanism of action and transmittal of genetic material. The following topics are studied in detail: physical structure of a gene, concept of linkage and genetic control of metabolism and development.

BIOL 3306: GENETICS LABORATORY, zero (0) credits, three (3) contact hours. Complements BIOL 3305.

BIOL 3417: BIOLOGY OF PLANTS, four (4) credits, three (3) contact hour and three (3) hours of laboratory per week. **Pre-requisite:** BIOL 3011-3012. A study of the general concepts of the taxonomy, anatomy, physiology and the ecology of plants.

BIOL 3418: BIOLOGY OF PLANTS LAB, zero (0) credits, three (3) contact hours. Complements BIOL 3417.

BIOL 3425: BIOLOGY OF ANIMALS, four (4) credits, three (3) contact hours and three (3) hours of laboratory per week. **Pre-requisite:** BIOL 3011-3012. Biology of the different animal group with emphasis on their morphology, physiology, variety, reproduction, ecology, behavior, evolution and taxonomy.

BIOL 3426: BIOLOGY OF ANIMALS LAB, zero (0) credits, three (3) contact hours. **Pre-requisite:** BIOL 3011-3012. Complements BIOL 3420. A study of the preserved and live specimens of the different animal groups with emphasis given to the dissection and the study of their structures.

BIOL 3705: GENERAL MICROBIOLOGY, four (4) credits, three (3) contact hours and three (3) hours of laboratory per week. **Pre-requisite:** BIOL 3011-3012. Study of the morphology, metabolism, growth, control, genetics, taxonomy, parasite-host relations, immunology and aspects applied to microbiology.

BIOL 3707: MICROBIOLOGY LABORATORY, zero (0) credits, three (3) contact hours. Complements BIOL 3705.

BIOL 3731: GENERAL MICROBIOLOGY, four (4) credits, four (4) contact hours per week. Pre-requisite: BIOL 3011-3012. Co-requisite: BIOL 3732 General Microbiology Laboratory. Through lectures, class discussions and demonstrations the student will explore the general characteristics of viruses, bacteria, fungi, algae, worms and protozoa with emphasis on morphological and physiological characteristics. Introduction to basic concepts related to microorganisms in the environmental, medical and industrial areas. The course is complemented with laboratory exercises. Course for students of BS in Microbiology Program of the UPR at Arecibo.

BIOL 3732: LABORATORY GENERAL MICROBIOLOGY, one (1) credit, three (3) contact hours per week. Co-requisite: BIOL 3731 General Microbiology. Study of the morphology, physiology, taxonomy, ecology and control of most common microorganisms with emphasis on microbiological culture techniques.

BIOL 3733: ENVIRONMENTAL MICROBIOLOGY, three (3) credits, two (2) lecture hours and three (3) hours of laboratory per week. Pre-requisite: BIOL 3731-3732 - General Microbiology. Co-requisite: BIOL 3734: Environmental Microbiology Laboratory. Through lectures, class discussions and demonstrations will study microorganisms within the context of their relationship and activity in the environment. The focus will be applications of microorganisms in the remediation of environmental systems. For students of BS in Microbiology Program of the UPR in Arecibo.

BIOL 3734: ENVIRONMENTAL MICROBIOLOGY LABORATORY, zero (0) credits, three (3) hours of laboratory per week. Co-requisite: BIOL 3733 Environmental Microbiology. Laboratory designed to introduce students to the field of environmental microbiology. It emphasizes the study of microorganisms within the context of their relationship and activity in the environment. It will focus on basic techniques to identify microorganisms that contribute to the remediation of environmental systems.

BIOL 3735: HUMAN PHYSIOLOGY, four (4) credits, three (3) contact hours and three (3) hours of laboratory per week. Pre-requisites: BIOL 3011-3012. A study of the fundamental physiological principles of the human body.

BIOL 3736: HUMAN PHYSIOLOGY LABORATORY, zero (0) credits, three (3) contact hours. Complements BIOL 3735.

BIOL 3745: PRINCIPLES OF MEDICAL MYCOLOGY, three (3) credits, two (2) contact hours and three (3) hours of laboratory per week. Pre-requisites: BIOL 3011-3012 and BIOL 3705 or BIOL 3731. The study of the fungi that affect man. The basic techniques and concepts will initially be described gradually moving on to more advanced areas in medical mycology.

BIOL 3746: PRINCIPLES OF MEDICAL MYCOLOGY LAB, zero (0) credits, three (3) contact hours. The student will become acquainted with the majority of fungi which are potentially pathogenic, and the processes and/or methods of producing diseases in man. The laboratory will offer the student the adequate mechanisms, so that he will be able to identify the majority of pathogenic fungi as well as those called “opportunistic”.

BIOL 3747: MICROBIAL ECOLOGY; three (3) crédits, two (2) lecture hours and three (3) hours of laboratory per week. Pre-requisite: BIOL 3731-3732 - General Microbiology and be in the Enviromental Microbiology emphasis area. Co-requisite: BIOL 3748: Microbial Ecology Laboratory. Through conferences, class discussions and demonstrations will study the relationships between organisms and their biotic and abiotic environment. It discusses the role of microorganisms as essential agents to allow the operation of biogeochemical cycles and therefore make possible the orderly flow of materials and energy through the ecosystem. Will also discuss the structure, physiology and diversity of microorganisms as the basis for the changes they generate. Special emphasis on microbial activity and their involvement in the balance of local and global ecological processes. Course for students of the BS in Microbiology from the UPR at Arecibo.

BIOL 3748: MICROBIAL ECOLOGY LABORATORY; zero (0) credits, three (3) hours of laboratory per week. Co-requisite: BIOL 3747 Microbial Ecology. Laboratory designed to introduce students to the field of microbial ecology and the role of microorganisms as key players in the viability of the environment. Emphasis on microbial activity as an agent to maintain the balance of global and local ecological processes. Course for students of the BS in Microbiology from the UPR at Arecibo.

BIOL 3791: HUMAN BIOLOGY PART III, three (3) credits, two (2) contact hours and three (3) hours of laboratory per week. Pre-requisite: BIOL 3011-3012. The study of the structure and function of the cell. The four basic tissues of the skeletal integumentary, muscular and nervous systems of the human body.

BIOL 3792: HUMAN BIOLOGY PART IV, three (3), two (2) contact hours, three (3) hours of laboratory per week. Pre-requisite: BIOL 3781. The study of the structure and function of the circulatory, digestive, respiratory, urinary, endocrine, reproductive and immunological systems; aging and function of the human body.

BIOL 3793: HUMAN BIOLOGY I LAB, zero (0) credits, three (3) contact hours. Complements BIOL 3791.

BIOL 3794: HUMAN BIOLOGY II LAB, zero (0) credits, three (3) contact hours. Complements BIOL 3792.

BIOL 3905: GENETICS OF BACTERIA, three (3) credits, three (3) hours lecture. Pre-requisite. BIOL 3705 or BIOL 3731. The study of the basic principles of bacteria and virus genetics, the nature, organization and function of genetic material in bacteria and bacteriophage, the mechanism of genetic rearrangement and exchanges, and the genetic analysis of re-combination; the mutation and reparation process, manipulation of genetic material and recombinant DNA. The importance of the prokaryote genetics systems in the development of molecular genetics and biotechnology is emphasized.

***BIOL 3907: MOLECULAR BIOLOGY, three (3) credits, three (3) hours of lecture. Pre-requisite. BIOL 3011-3012. Co-requisite BIOL 3908.** Through lectures, class discussions and demonstrations will explore the fundamental principles of molecular biology. Will discuss the structure, function and biosynthesis of key biological macromolecules and their interactions in the cell. Interpreting the fundamental biological processes in terms of physical and chemical properties of these molecules. It especially emphasizes DNA and its role in genetic processes. The course is complemented by laboratory exercises. For students of BS in Microbiology Program of the UPR in Arecibo.

***BIOL 3908: LABORATORY MOLECULAR BIOLOGY, zero (0) credit, three (3) hours of laboratory per week. Co-requisite BIOL 3907.** The study of the basic principles of molecular biology. A discussion of the structures, function and biosynthesis of the most important biological macromolecules and their interaction with the cell. An analysis is done of the fundamental biological processes in terms of the physic-chemical properties of these molecules. Emphasis is specially placed on DNA and its major role in the genetic process.

BIOL 3909: INTEGRATING SEMINAR; one (1) credit, one (1) contact hour. Pre-requisite: Have completed the third year of the curriculum. Through lectures, discussions, workshops, literature search, use of databases on the Internet and knowledge gained through their previous courses of specialty; the student will carry out an investigation of scientific knowledge about a particular topic assigned. Subsequently, the student will develop a paper about the assigned topic, which then will present and discuss at a seminar with his peers. Course for students of the BS in Microbiology from the UPR at Arecibo.

BIOL 3910: BIOINFORMATICS SEMINAR; one (1) credit, one (1) contact hour. Pre-requisites: BIOL 3907/BIOL 3908, QUIM 3461/QUIM 3462, MATE 3031 Y MATE 3026. Through lectures, class discussions and use of databases on the Internet will study the basic principles of bioinformatics and their applications to research in the field of microbiology and related matters. Special emphasis on the specific terminology that

characterizes this sub-discipline of biology. Course for students of the BS in Microbiology from the UPR at Arecibo.

BIOL 3915: INDUSTRIAL MICOLOGY, three (3) credits, two (2) hours of lecture and three (3) hours of laboratory per week. Pre-requisite: BIOL 3705 or BIOL 3731. The study of fungi with emphasis on their importance in industry. A discussion of fungi and their relations with the elaboration of food, agriculture, medicine; and as a source of food and their importance as a contaminating agent.

BIOL 3916: INDUSTRIAL MICOLOGY LAB, zero (0) credits, three (3) contact hours. Complements BIOL 3915.

BIOL 3917: INDUSTRIAL BACTERIOLOGY, three (3) credits, two (2) hours of lecture and three (3) hours of laboratory per week. Pre-requisite: BIOL 3705 or BIOL 3731. The study of the principal bacteria related to water, milk and other food. A discussion of bacteriological control and analysis used, with emphasis on sterile areas. Includes methods of good manufacturing processes.

BIOL 3918: INDUSTRIAL BACTERIOLOGY LAB, zero (0) credits, three (3) contact hours. Complements BIOL 3917.

BIOL 3919: WATER MICROBIOLOGY , three (3) credits, two (2) hours of lecture and three (3) hours of laboratory per week. Pre-requisite: BIOL 3705 or BIOL 3731. The basic concepts of microbiology and their application to water. Study of the principle groups of microorganisms related to the basic problems in managing bodies of water. Methods used in the control and microscopic analysis of water.

BIOL 3920: WATER MICROBIOLOGY LABORATORY, zero (0) credits, four (4) contact hours. Complements BIOL 3919.

BIOL 3926: FOOD MICROBIOLOGY; three (3) credits, three (3) hours lecture. Pre-requisites: BIOL 3731, BIOL3732 and be in the Industrial Microbiology emphasis area. Through lectures, class discussions and demonstrations will be studied microorganisms related to processed and not processed food. Special emphasis on those microorganisms that directly or indirectly are related to food industry and the control methods required for them. Course for students of the BS in Microbiology from the UPR at Arecibo.

BIOL 3927; CONCEPTS IN PHARMACEUTICAL BIOTECHNOLOGY, four (4) credits, three (3) contact hours. Co-requisite: BIOL 3928. Concepts in pharmaceutical biotechnology. Overview of industrial pharmaceutical biotechnology with emphasis on the construction, production, purification and analysis of pharmaceutical biotechnological products, including

the study of those technologies that allow the development of new cells capable of making protein with clinical applications.

BIOL 3928: LABORATORY FOR CONCEPTS IN PHARMACEUTICAL BIOTECHNOLOGY, zero (0) credits, three (3) contact hours. Co-requisite: BIOL 3927. Laboratory practice focusing on the use of molecular biology concepts, as applied to biotechnology, emphasizing in the processes involved in the introduction of a transgen into a host cell with the final goal of expressing and purifying a recombinant protein.

BIOL 3930: ENVIRONMENTAL ANALYSIS, three (3) credits, three (3) hours of lecture weekly. Pre-requisite. BIOL 3731 and BIOL 3732. Through lectures, class discussions and demonstrations students' will explore the basic principles of environmental analysis. We will work with the indicators of water quality, air and soil. Special emphasis on the design of sampling plans that provides information on water quality, air or soil. Similarly will considered potential sources of pollutants and analysis techniques for them. The course is complemented by demonstrations and use of equipment to determine physical, chemical and biological quality of the environment. For students of BS in Microbiology Program of the UPR in Arecibo.

BIOL 3935: MOLECULAR BIOLOGY OF CANCER , two (2) credits, two (2) contact hours per week. Pre-requisite BIOL 3907. Molecular biology of cancer this course studies the basic principles of control of eukaryotic cell proliferation and the molecular mechanisms underlying the transformation of a normal cell into a malignant one. Emphasis is made on the components of the cell machinery that controls cell division and the processes that induce failure of regulatory mechanisms. The course provides an insight on how the knowledge of these molecular events is used in the development of new therapeutic strategies.

BIOL 4001: PRINCIPLES OF GENERAL BIOLOGY, four (4) credits, four (4) contact hours and three (3) hours of laboratory per week. The study of the basic principles and modern concepts of biology. An introduction to the study of cell morphology, physiology, division and metabolism. Emphasis is placed on the structure of living matter, the chemical composition, molecular aspects, the fermentation process, the basic aspects having to do with the origin and evolution of organism. Complemented by laboratory exercises and demonstrations. Course designed for students in B.S. Program in chemical engineering technology; prepares the student for the course in industrial microbiology.

BIOL 4002: PRINCIPLES OF GENERAL BIOLOGY LAB, zero (0) credits, three (3) hours of lecture per week. Laboratory for BIOL 4001.

BIOL 4006: MEDICAL BACTERIOLOGY; three (3) credits, three (3) hours lecture. Pre-requisites: BIOL 3731, BIOL 3732, **and be in the Medical Microbiology emphasis area.** Through lectures, class discussions and demonstrations students' will explore the basic principles governing the pathogenic bacteria, understanding its importance in disease processes, epidemiology, and the basis of the treatment of infectious diseases. Special emphasis on the study of infectious syndromes, etiologic agents, clinical diagnosis and therapy. It describes the characteristics of virulence factors and their relationship to infectious disease. The course is complemented by demonstrations and laboratory experiences brief. For students of BS in Microbiology Program of the UPR in Arecibo.

BIOL 4011: APPLIED INDUSTRIAL MICROBIOLOGY, four (4) credits, three (3) contact hours and three (3) hours of laboratory per week. Pre-requisite: BIOL 4001-4002. The study of process involved in the cultivation and growth of microorganisms used in industry for the production of food, vitamins, antibiotics and chemical substances. Emphasis is placed on the basic concepts of morphology, nutrition and metabolic activities of yeast, fungi and bacteria. Complemented by lab exercises and demonstrations. Designed for students in industrial engineering technology.

BIOL 4012: APPLIED INDUSTRIAL MICROBIOLOGY LAB, zero (0) credits, three (3) contact hours. Laboratory that complements BIOL 4011.

BIOL 4020: INDUSTRIAL PROCESS VALIDATION; three (3) credits, three (3) hours lecture. Pre-requisites: BIOL 3917/3918, BIOL 3915/3916, BIOL 3926, **and be in the Industrial Microbiology emphasis area.** Through lectures, class discussions and demonstrations students' will explore the basic principles governing the processes of qualification, certification and validation that apply to drug industries, food and cosmetics regulated by the Food and Drug Administration (FDA) and Pharmacopoeias United States, Europe, Japan and England (for its acronym USP, EP, JP and BP respectively). It is aimed at practical learning of the microbiologist to establish and develop a written program that will later impact by simulation practice of the certification of personnel, validation of equipment and processes that apply to laboratories and manufacturing in the industrial field. Will study and experiment *in vivo*, the management of tests for the detection of bacteria and fungi under the same parameters of regulatory requirements that are required in the pharmaceutical industry. For students of BS in Microbiology Program of the UPR in Arecibo.

BIOL 4023: IMMUNOLOGY FUNDAMENTALS, two (2) credits, two (2) contact hours per week. Pre requisite: BIOL 3011 and BIOL 3012. **Co-requisite:** BIOL 4024. Through lectures, class discussions and demonstrations students'will explore the basic principles of immunology and clinical applications. Special emphasis on the study of immune system

function including cells, organs and antibodies. It also presents topics in histocompatibility systems, tumor immunology, autoimmunity and hypersensitivity. Will discuss the immunological aspects of some diseases in humans. The interaction between microorganisms that cause infectious diseases, the immune system and immunity will also be discuss. The course is complemented by laboratory exercises. For students of BS in Microbiology Program of the UPR in Arecibo.

BIOL 4024: LABORATORY IMMUNOLOGY FUNDAMENTALS, one (1) credit, three (3) contact hours per week. Co-requisite: BIOL 4023. Laboratory where the students will apply the concepts learned in lecture. It will consider the study of organs and cells of the immune system, innate immune mechanisms, cell culture techniques and immunodiagnostic.

BIOL 4045: ENVIRONMENTAL RIGHTS; three (3) credits, three (3) hours lecture. Pre-requisites: BIOL 3930, and be in the Environmental Microbiology emphasis area. Through lectures, class discussions, study of documents and cases will study the basic principles governing the rights of Puerto Rican environment. From the legal definition of environment, students will work with the development of environmental laws in Puerto Rico with emphasis on the general aspects of the laws associated with the conservation and preservation of the same. Likewise will be discussed the natural resources of Puerto Rico as a national heritage and existing legislation to ensure its sustainability for future generations. Students are expected to design proposals in order to solving of problems affecting the environment based on the analysis of the laws that apply to them. Course for students of BS in Microbiology Program of the UPR in Arecibo.

BIOL 4055: ENVIRONMENTAL SCIENCE, three (3) credits, three (3) hours of lecture per week. Students will become familiar with the basic concepts of an ecosystem. They will be able to carry out a comparative study of a terrestrial and an aquatic ecosystem. They will also analyze the problems of environment pollution and the control methods established by man, while having the opportunity of offering their own solutions to environmental problems.

BIOL 4056: INTRODUCTION TO IMMUNOLOGY, three (3) credits, three (3) hours of lecture per week. Pre-requisites: BIOL 3011-3012. A discussion of the basic principles of immunology and their clinical applications in medicine and other fields. The course describes the function of the immunological system including cells, organs and immunoglobulin. Topics in immunology such as histo-compatibility, as well as, immunity are discussed. The immunological aspects of various diseases in humans are discussed.

BIOL 4347: EVOLUTION, four (4) credits, four (4) contact hours. Pre-requisite: BIOL 3305. The study of the processes and patterns of organic evolution with emphasis on the historical development of the evolutionary concept, the evidence sustaining the theory, the

genetic structure of the population and the effect the evolutionary forces have on the genetic equilibrium of the population, the speciation mechanisms, the evolutionary history of different groups of organism and the evolution of behavior.

BIOL 4426: GENERAL PARASITOLOGY, three (3) credits, two (2) contact hours and three (3) hours of laboratory per week. Pre-requisite: BIOL 3011-3012. A systematic study of the morphology, life cycle and epidemiology of the principal parasites with an emphasis on those that affect man.

BIOL 4427: PARASITOLOGY LABORATORY, zero (0) credits and three (3) contact hours. Laboratory for BIOL 4426.

BIOL 4428: INTRODUCTION TO VIROLOGY; three (3) credits, three (3) hours lecture. Pre-requisites: BIOL 3731, BIOL 3732, BIOL 3907, BIOL 3908.and be in the Medical Microbiology emphasis area. Through lectures, class discussions and demonstrations will study the basic principles of classification, structure, physiology and biochemical activity of the virus. Will study the interactions between viruses with different entities and the diseases they can cause. Course for students of the BS in Microbiology from the UPR at Arecibo.

BIOL 4755: HISTOLOGY, three (3) credits , two (2) contact hours and three (3) hours of laboratory per week. Pre-requisites: BIOL 3011-3012. Introduction to the microscopic study of the tissues and organs of superior animals special emphasis on man.

BIOL 4756: HISTOLOGY LABORATORY, zero (0) credits, tree (3) contact hours per week. Laboratory of BIOL 4455.

****BIOL XXXX: BIOETHICS**

****BIOL XXXX: ENVIRONMENTAL MICOLOGY**

****COURSES TO BE CODED**

CIBI

CIBI 3001: FOUNDATIONS OF BIOLOGY I, three (3) credits, three (3) contact hours. The study of the fundamental biological concepts including the structure and chemical composition of living matter, the cell unite, cellular and genetic metabolism with emphasis on man. The class is conducted by means of lectures, discussions and demonstration. For students who are not in the department of natural sciences. Not equivalent **BIOL 3011**.

CIBI 3002: FOUNDATIONS OF BIOLOGY II, three (3) credits, three (3) contact hours. **Pre-requisite:** **CIBI 3001.** The study of the fundamental concept of biology. Includes the study of ecology, development, evolution, hormonal and nervous control, and other anatomical and physiological aspects of life, with emphasis on man. The course is given by means of lectures, discussions and demonstrations. For students that are not in the department of natural science. Not equivalent to **BIOL 3012**.

CIIN

CIIN 1001: SCIENCE I, three (3) credits, three (3) contact hours per week. A study of the fundamental concepts of the biological and physical sciences needed for the teaching of modern science at an elementary level (K-6).

CIIN 1002: SCIENCE I LABORATORY, one (1) credit, three (3) contact hours per week. **Co-requisite:** **CIIN 1001.** This laboratory develops the basic skill in using lab equipment and materials related to elementary school earth and space sciences. Emphasis is given to the use of equipment and materials which are easily obtained and inexpensive.

CIIN 1003: SCIENCE II, three (3) credits, three (3) contact hours per week. **Pre-requisite:** **CIIN 1001, CIIN 1002.** The study of the fundamental concepts of biology and physics needed for the teaching of allows modern science at an elementary level.

CIIN 1004: SCIENCE II LABORATORY, one (1) credit, three (3) contact hours per week. **Co-requisite:** **CIIN 1003.** This laboratory develops the basic skills in using the lab equipment and materials related to elementary school biology and physics. Emphasis is given to the use of equipment and materials which are easily obtained and inexpensive.



SOCIAL SCIENCES

**BACHELOR'S DEGREE IN SOCIAL SCIENCES
WITH MAJOR IN IBERO-AMERICAN STUDIES
(1623)**

The concentration in Ibero-American Studies consists of 123 credits distributed as follows: 42 credits in General Education, 9 credits in departmental requirements, 30 concentration credits, 18 credits in guided electives and 12 electives.

Concentration courses have a multidisciplinary focus which includes economics, political science, sociology, anthropology, culture and geography. The section on guided electives allows students to choose courses that respond to their interests. Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
SOCI 3245	Fundamentals of Sociology	3
INGL 3101 ²⁵	Basic English I	3
INGL 3113	Oral Practice I	0
ESPA 3101	Basic Spanish I	3
	Electives in Humanities	3
CIBI 3001	Introduction to Biology I	3
	Total	15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CIPO 3011	Political Sciences	3
INGL 3102*	Basic English II	3
INGL 3114*	Oral Practice I	0
ESPA 3102	Basic Spanish II	3
	Elective in the Humanities	3
CIBI 3002	Introduction to Biology II	3
	Total	15

²⁵ Students who score above 580 on the English language part of the College Board Examination will take INGL 3103-Intermediate English I and INGL 3104-Intermediate English II. This sequence does not require the oral practice laboratory.

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA	Elective in Spanish	3
INGL	Elective in English	3
HIST 3241	History of Puerto Rico I	3
MATE 3001	Introductory Mathematics	3
	Electives in Social Sciences	3
	Total	15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
INGL	Electives in English	3
HIST 3242	History of Puerto Rico II	3
ESPA	Elective in Spanish	3
	Elective in Social Sciences	6
	Total	15

THIRD YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CIPO 4135	Latin American Political Thought	3
CIPO 4105	Latin American Political Systems	3
CISO 3071	Political and Socio-Economic Introduction to Latin America I	3
CISO 3316	Literature and Society in IberoAmerica I	3
	Guided Electives	3
	Total	15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CISO 3072	Political and Socio-Economic Introduction to Latin America II	3
CISO 3317	Literature and Society in Iberoamerica II	3
SOCI 3175	Latin American Sociology	3
SOCI 4187	Methodology of Sociological Research	3
	Guided Elective *	3
	Total	15

FOURTH YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
SOCI 3265	Techniques in Social Research	3
GEOG 3225	Latin American Geography	3
	Guided Electives	6
	Electives	3
	Total	15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
INTE 4011	Seminar on Latin American Studies	3
	Guided Electives	6
	Free Electives	9
	Total	15

ELECTIVES IN THE SOCIAL SCIENCES

Students will take at least three (3) of the following courses and pass them with a grade of C or better.

CODE	DESCRIPTION	CREDITS
ANTR 3006	Socio-cultural Anthropology	3
CISO 3155	Fundamentals of Statistical Reasoning	3
ECON 3005	Introduction to Economy	3
GEOG 3155	Elements of Geography	3
PSIC 3003	Introduction to Psychology	4

ELECTIVES IN SPANISH (SECOND YEAR)

Students will choose from among the following electives in Spanish, after consulting with their advisors.

CODE	DESCRIPTION	CREDITS
ESPA 3208	Writing and Style	3
ESPA 3805	Composition in Spanish	3
ESPA 4085	Theoretical Basis of the Sociology of Literature and Its Application to Latin American Novel	3
ESPA 3801-3802	Seminar on Contemporary Latin American Narrative I-II	6
ESPA 4221-4222	Latin American Literature I-II	6
ESPA 4231-4232	Puerto Rican Literature I-II	6

ELECTIVES IN ENGLISH (SECOND YEAR)

Students will choose from among the following electives in English, after consulting with their advisors.

CODE	DESCRIPTION	CREDITS
INGL 3093	Conversational English	3
INGL 3094	Conversational English for Professionals	3
INGL 3201-02	Grammar, Composition and Reading I-II	6
INGL 3121-3122	Introduction to Literature I-II	6
INGL 3191-3192	Introduction to Verbal Communication: Conversational English	6

ELECTIVES IN HUMANITIES (FIRST YEAR)

Students will choose from among the following electives in Humanities, after consulting with their advisors.

CODE	DESCRIPTION	CREDITS
HUMA 3201-3202	Western Civilization III-IV	6
FILO 4031-4032	Logic I-II	6
FRAN 4031-4032	Intensive French	6
HIST 4225	Theory of History	3
HIST 3111-3112	History of the United States	6
FILO 4581-4582	Philosophy of History	6

*These are second-year Social Sciences Courses. Students must complete at least 9 credits in these courses.

GUIDED ELECTIVES

CODE	DESCRIPTION	CREDITS
ANTR 3035	Cultural Variety in the Caribbean	3
ANTR 4025	Society and Culture of Marginalized Communities	3
ARTE 4282	History of Latin American Art	3
ECON 4015	Economic Development	3
ECON 4085	International Economy	3
ECON 4087	International Business	3
ECON 4095	Evolution of Modern Capitalism	3
ECON 4185	Economic Problems and Tendencies in Latin America	3
ECON 4215	Economic Problems and Tendencies in the Caribbean	3
ECON 4415	Seminar: Restructuring of International Economy	3
ESIN 4005	Cultural Politics in the Caribbean	3
ESPA 3305	Cinema and Hispanic Literature	3
CIPO 3035	The Political System of Puerto Rico	3
CIPO 4095	The Political System of the Caribbean	3

CIPO 4115	International Relations of Latin America and the Caribbean	3
CIPO 4225	Problems of Hispanic America	3
CIPO 4325	Marxist Thought	3
CIPO 4475	Latin America's Problem with Colonial Dependency	3
CIPO 4585	Social Changes and Political Development in Latin America	3
CIPO 4655	Latin American Political Sociology	3
CIPO 4665	Seminar: Problems with Latin American Political Integration	3
CIPO 4715	Nationalism, Colonialism and Imperialism	3
CIPO 4725	Seminar: Political Thought in the Caribbean	3
CISO 3025	Rural Movements in Latin America during the 19th Century	3
CISO 3061-3062	Socio-economic and Political Introduction to the Caribbean. I-II	3
CISO 3186	Society and Culture in Contemporary Caribbean	3
CISO 4035	Problems of Independence in the Contemporary Caribbean	3
CISO 4075	United States and the Caribbean	3
CISO 4105	Popular Movements in the Caribbean	3
CISO 4115	Problems and Perspectives of Latin America	3
CISO 4155	The Church as Socio-political Factor in Latin America	3
CISO 4325	Nationalism in Puerto Rico	3
CISO 4337	Nationalism in Latin America and the Caribbean	3
CISO 4365	The Problem of Underdevelopment in Latin America and the Theories of National Development	3
CISO 4375	Seminar on Colonialism	3
CISO 4505	Seminar: Modern Imperialism	3
CISO 4521-4522	Seminar and Travel Study through the Caribbean I-II	3

GEOG 3165	Geography of Puerto Rico	3
HIST 3101-3102	History of Mexico I-II	3
HIST 3145	General History of Spain	3
HIST 4165	History of Brazil	3
HIST 4215	History of Africa	3
HIST 4355	Afro-Antillean Societies	3
HIST 4990	Int. to the Historical Study Travel	3
HIST 4995	Historical Study Travel	3
SOCI 1001	Sociological Bases for Environmental Education	3
SOCI 3175	Latin American Sociology	3
SOCI 3355	Populations and Problems of Latin America	3
SOCI 4045	Race Relations in the Hispanic Caribbean: Cuba, Puerto Rico and Santo Domingo in the 19th century.	3

**BACHELOR'S DEGREE IN SOCIAL SCIENCES
WITH MAJOR IN INDUSTRIAL ORGANIZATIONAL PSYCHOLOGY²⁶
(1624)**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
SOCI 3245	Fundamentals of Sociology	3
ESPA 3101 ²⁷	Basic Spanish I	3
INGL 3101	Basic English I	3
INGL 3113	Oral Practice I	0
HUMA	Elective in Humanities	3
CIBI 3001	Introduction to the Biological Sciences I	3
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
	Electives in Social Sciences	3
ESPA 3102	Basic Spanish II	3
INGL 3102	Basic English II	3
INGL 3114	Oral Practice II	0
HUMA	Elective in Humanities	3
CIBI 3002	Introduction to the Biological Sciences II	3
Total		15

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA	Elective in Spanish	3
INGL	Elective in English	3
PSIC 3003	General Psychology	4
MATE 3001	Introductory Mathematics	3
	Electives in Social Sciences	3
Total		16

²⁶ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

²⁷ Students who score above 580 on the English language part of the College Board Examination will take INGL 3103-Intermediate English I and INGL 3104-Intermediate English II. This sequence does not require the oral practice laboratory.

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA	Elective in Spanish	3
INGL	Elective in English	3
PSIC 3116	Industrial Psychology	3
CISO 3155	Fundamentals of Statistical Thought	3
	Elective in Social Sciences	3
	Total	15

THIRD YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
HIST 3241	History of Puerto Rico I	3
PSIC 3345	Psychological Approach to Groups in a Labor Context	3
PSIC 4025	Physiological Psychology	2
PSIC 4026	Laboratory for Physiological Psychology	1
PSIC 3006	Social Psychology	3
CISO 3156	Use of Computers in Social Research	3
	Total	15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
HIST 3242	History of Puerto Rico II	3
PSIC 3057	Development of Tests	3
ANTR 4035	Medical Anthropology	3
PSIC 4036	Intro. to Organizational Development	3
	Guided Elective	3
	Total	15

FOURTH YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
SOFI 4505	In-Service Training Techniques	
PSIC 4211	Internship in Industrial Organizational Psychology I	3
PSIC 4017 ²⁸	The Experiment And Other Methods Of Psychological Research	2
PSIC 4018	Experimental Psychology Laboratory	1
	Guided Electives	3
	Free Electives	6
	Total	15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
PSIC 4211 ²⁹	Internship in Industrial Organizational Psychology	3
REHU 4425	Human Behavior in an Organization	3
PSIC 3107	Psychology, Ethics And The Development Of Moral Judgments	3
	Guided Electives	3
	Free Electives	6
	Total	18

Total credits 124

ELECTIVES IN SPANISH (SECOND YEAR)

Students will choose from among the following electives in Spanish, after consulting with their advisors.

CODE	DESCRIPTION	CREDITS
ESPA 3208	Writing and Style	3
ESPA 3805	Composition in Spanish	3
ESPA 4085	Theoretical Basis of the Sociology	3

²⁸ Pre-requisites for PSIC 4017-4018 include PSIC 3003, CISO 3155 and CISO 3156.

²⁹ Pre-requisites for PSIC 4211 include PSIC 3003, PSIC 3116, PSIC 3345 and PSIC 3057.

	of Literature and Its Application to Latin American Novel	
ESPA 3801- 3802	Seminar on Contemporary Latin American Narrative I-II	6
ESPA 4221- 4222	Latin American Literature I-II	6
ESPA 4231- 4232	Puerto Rican Literature I-II	6

ELECTIVES IN ENGLISH (SECOND YEAR)

Students will choose from among the following electives in English, after consulting with their advisors.

CODE	DESCRIPTION	CREDITS
INGL 3093	Conversational English	3
INGL 3094	Conversational English for Professionals	3
INGL 3201-02	Grammar, Composition and Reading I-II	6
INGL 3121- 3122	Introduction to Literature I-II	6
INGL 3191- 3192	Introduction to Verbal Communication: Conversational English	6

ELECTIVES IN HUMANITIES (FIRST YEAR)

Students will choose from among the following electives in Humanities, after consulting with their advisors.

CODE	DESCRIPTION	CREDITS
HUMA 3201- 3202	Western Civilization III-IV	6
FILO 4031-4032	Logic I-II	6
FRAN 3191-3192	Basic French I-II	6
FRAN 3031-3032	Intensive French I-II	6

ELECTIVES IN SOCIAL SCIENCES

Students will take at least three (3) of the following courses and pass them with a grade of C or better.

CODE	DESCRIPTION	CREDITS
ANTRO 3006	Socio-cultural Anthropology	3
ECON 3005	Introduction to Economy	3
GEOG 3155	Elements of Geography	3
CIPO 3011	Fundamentals of Political Sciences	3

GUIDED ELECTIVES

CODE	DESCRIPTION	CREDITS
PSIC 3015	Theories of Personality	3
PSIC 3025	Human Development	3
PSIC 3048	Group Dynamics	3
PSIC 3065	Psychology of Motivation	3
PSIC 3088	Psychological Analysis of Social and Cultural Changes in Puerto Rico	3
PSIC 3346	Strategies for the Development of High Learning Organizations.	3
PSIC 3347	Strategies for Gathering Data for Organizational Decision-Making	3
PSIC 3348	Theories of Personality Applied to the Labor Context	3
PSIC 3349	The Psychology of Individual Differences and Its Application to Organizations	3
PSIC 4047	Psychology of the Consumer	3
PSIC 4212	Industrial Psychology Internship II	3
PSIC 4215	Adult Employees and Retirement	3
REHU 4405	Management of Human Resources	3
REHU 4406	Labor Relations	3
REHU 4407	System of Compensation	3
REHU 4409	Human Relations	3
REHU 4426	Collective Bargaining	3
ADMI 3005	Administrative Theory	3

CODE	DESCRIPTION	CREDITS
ESCO 3001	Psychology of Communication I	3
ESCO 3002	Psychology of Communication II	3
EDES 3006	Diagnostic and Treatment of Reading and Writing Deficiencies	3
EDES 4006	Nature and Needs of Exceptional Students	3
EDES 4049	Characteristics and Needs of Children with Learning Disabilities	3
EDFU 3007	Social Foundations of Education	3
EDFU 3017	Evaluation of Learning Process	3
EDPE 4265	Teaching Oriented Towards the Development of Thought	3

FACULTY

Altagracia Espada, Carlos D., Ph.D., *Associate Professor*, Doctor of Philosophy, History, Universidad de Puerto Rico.

Andújar Rojas, Carlos A., Ph.D., *Professor*, Doctor of Philosophy, Industrial Organizational Psychology, Universidad de Puerto Rico.

Colón Meléndez, Jaime R., Ph.D., *Professor*, Doctor of Philosophy, Sociology, Universidad de Salamanca, España.

Entrialgo Granado, Karen, Ph.D., M.A., *Assistant Professor*, Doctor of Philosophy, Clinical Psychology, University of Puerto Rico, Master of Philosophy Science, Université de la Sorbonne, France.

Fernández Sosa, Nilda C., Ph.D., *Associate Professor*, Doctor of Philosophy, Industrial Organizational Psychology, Universidad de Puerto Rico.

Figueroa Martell, Vangelo, M.A., *Professor*, Master of Arts, Criminal Justice, Universidad Interamericana de Puerto Rico

Elba M. García Ochoa, Ph.D., *Associate Professor*, Doctor of Philosophy, Industrial Organizational Psychology, Universidad de Puerto Rico.

Martínez Segarra, Eumardo L., Psy. D., *Professor*, Doctor of Psychology, Clinical Psychology, Centro Caribeño de Estudios Postgraduados, Puerto Rico.

Medina Santiago, Iván F., M.A., *Associate Professor*, Master of Arts, General Anthropology, Medical Anthropology, New School for Social Research, New York.

Mercado Nieves, Juan M., J.D., M.A., *Assistant Professor*. Juris Doctor, Universidad Interamericana de Puerto Rico; Master of Arts, Latin American Studies, Politics of Development and History, Indiana University.

Morales Martínez, Rufino, Ph.D., *Professor*, Doctor of Philosophy, Clinical Psychology, Centro Caribeño de Estudios Postgraduados, Puerto Rico.

Narváez Marrero, Ramón A., M.P., *Associate Professor*, Master of Arts, Social Planning, Universidad de Puerto Rico.

Puig Hernández, Juan C., J.D., M.S.C.E., *Professor*, Juris Doctor, Universidad de Puerto Rico; Master of Sciences, Civil Engineering, Universidad de Puerto Rico.

Quiñones Domínguez, Martha G., Ph.D., *Associate Professor*, Doctor of Philosophy, Economy and Sustainable Development, Universidad Complutense de Madrid, España; Master of Arts, Economy, Universidad de Puerto Rico.

Ramírez Ortiz, Lourdes E., Ph.D., *Assistant Professor*, Doctor of Philosophy, Industrial Organizational Psychology, Universidad de Puerto Rico.

Rodríguez Rodríguez, Roberto, LL.M., J.D., M.A., *Professor*, Master of Law, Family Law, Universidad de Barcelona, España, Juris Doctor, Universidad Interamericana de Puerto Rico; Master of Arts, History of Puerto Rico and Caribbean, Centro de Estudios Avanzados de Puerto Rico y el Caribe.

Rodríguez Vázquez, José J., Ph.D., J.D., *Professor*, Doctor of Philosophy, History, Universidad de Puerto Rico; Juris Doctor, Universidad Interamericana de Puerto Rico.

Saponara Curotto, Manuel A., Ph.D., *Professor*, Doctor of Philosophy, Ibero-American Studies, University of New Mexico.

Vilá González, Hilda M., Ph.D. *Assistant Professor*, Doctor of Philosophy, Community Social Psychology, Universidad de Puerto Rico.

LIST OF COURSES

ANTR

ANTR 3005: INTRODUCTION TO CULTURAL ANTHROPOLOGY, three (3) credits, three (3) contact hours per week. Pre-requisite: CISO 3122. Introduction to the different branches of anthropology with emphasis on its social-cultural aspect. Includes the comparative study of the economic, political, religious and family systems. The Caribbean is an area of special interest.

ANTR 3006: SOCIO-CULTURAL ANTHROPOLOGY, three (3) credits, three (3) lecture hours per week. Study of the subject. Study of the arguments on the nature of the subject. Systematic discussion of the anthropological concept of the culture and its relation to ideology, and also of the concepts of the modes of its production, social origins, relationship between production and social evolution. These concepts are discussed in the context of the stages of hunt-collection and the transition to a proprietary economy, from incipient to intensive production, the rise of the peasant and the development of the state.

ANTR 3035: CULTURAL VARIETY IN THE CARIBBEAN, three (3) credits, three (3) lecture hours per week. Analysis of the socio-economic structures of the Caribbean, with particular attention to their cultural expressions. Discussion of subjects such as: dominant cultures, popular cultures; African-American culture; social class and culture and the ethnic-national issue.

ANTR 3046 HUMAN EVOLUTION, (3) credits, three (3) contact hours per week. The study of the origins, development, and variation of the human species in a biological context comparison of the fossil and molecular evidence to understand the first human societies. Discussion of the principal debates about human diversity.

ANTR 4025: SOCIETY AND CULTURE OF MARGINALIZED COMMUNITIES, three (3) credits, three (3) lecture hours per week.. Comparative focus on the study of slums and unregulated urban settlements in various countries with the purpose of analyzing their internal structure and their integration into the global society. The relevant theoretical approaches will be studied to understand the growth of poor sectors, the problem of underdevelopment, marginalization and the relationship between these phenomena and slum organization and formation. A field or library research project is required about topics that help to understand the socio-cultural dynamics of these urban conglomerates.

ANTR 4035: MEDICAL ANTHROPOLOGY, three (3) credits, three (3) lecture hours per week. Comparative analysis of the cultural definitions of health and sickness. Discussion of the methodology of social-historical epidemiology, as well as of the diversity of ethno-

medical systems. Also the study of the historical organization of medical systems, with emphasis on their power structure.

CIPO

CIPO 3011: PRINCIPLES AND PROBLEMS IN POLITICAL SCIENCES, three (3) credits, three (3) lecture hours per week. Pre-requisite: CISO 3122. Different visions of political life. Analysis of the processes and important institutions that take part in the collective decision-making of the political system. Application of the preceding to the particular case of Puerto Rico.

CIPO-3025 POLITICAL SYSTEM OF THE UNITED STATES, (3) credits, three (3) contact hours per week. A study of the historical background of the United States government and the political theory on which it is based. An analysis of the structure of this government at the national and stated levels. The political process with emphasis on separation of power federalism pressure groups and political parties.

CIPO 3035: THE POLITICAL SYSTEM OF PUERTO RICO, three (3) credits, three (3) lecture hours per week. Historical and analytical study of the government of Puerto Rico since 1898 to the present. The political institutions developed during the period of American domination (1898-1952); the Constitutions of the Commonwealth of Puerto Rico, the Legislative, Executive and Judicial branches, municipal governments, and the relations between Puerto Rico and the USA.

CIPO 3045: SOCIAL SCIENCES OF INTERNATIONAL ORGANIZATIONS, three (3) credits, three (3) lecture hours per week. Pre-requisite: CISO 3122. Historical study of International Relations. Special attention will be accorded to the balance of power, the European Union, the League of Nations and the United Nations Organization.

CIPO 4095: CARIBBEAN POLITICAL SYSTEMS, three (3) credits, three (3) lecture hours per week. Development and constitutional, political and government practices in the Caribbean countries, including the Antilles, Mexico, Central America, Colombia and Venezuela.

CIPO 4105: LATIN AMERICAN POLITICAL SYSTEMS, three (3) credits, three (3) lecture hours per week. Pre-requisite: CIPO 3011. Study of the political systems of the principal Latin American countries. Social and historical backgrounds will be analyzed, as will relationship between the social and political systems in each case.

CIPO 4115: INTERNATIONAL RELATIONS OF LATIN AMERICA AND THE CARIBBEAN, three (3) credits, three (3) lecture hours per week. Pre-requisite: CIPO 3011 and the professor's permission. A study of the development and the current state of the relations between Latin American countries between themselves, with Anglo-America and the Caribbean.

CIPO 4135: LATIN AMERICAN POLITICAL THOUGHT, three (3) credits, three (3) lecture hours per week. Pre-requisite: CIPO 3011. The principal schools of political thought that dominated Latin America in the Twentieth Century. Analysis of representative authors on the Mexican Revolution, “aprimo”, “peronismo”, contemporary movements such as the democratic left, “fidelismo” and communism the right wing oligarchy and the function of the military in politics.

CIPO 4225: PROBLEMS OF SPANISH AMERICA, three (3) credits, three (3) lecture hours per week. Pre-requisite: CIPO 3011. Critical analysis of the principal political, economic, social and cultural problems of developing countries, with special reference to Central America.

CIPO 4325: MARXIST THOUGHT, three (3) credits, three (3) lecture hours per week. Pre-requisite: CIPO 3011. Critical examination of some of the aspects of Marxist theory, specially the analysis of the works of Karl Marx.

CIPO 4475: THE PROBLEM OF COLONIAL DEPENDENCE IN LATIN AMERICA, three (3) credits, three (3) lecture hours per week. Pre-requisite: CIPO 3011. This course has three principal objectives: (1) all dependence theories will be analyzed and compared, studying, among other aspects dependence in contrast to classical colonialism and neo-colonialism, (2) the dimensions of this problems in Latin America. Economic, social and cultural aspects will be particularly examined, and (3) the student will be stimulated and guided to write a monograph in which all these aspects are researched in relation to the concrete experience of a particular Latin American society.

CIPO 4585: SOCIAL CHANGE AND POLITICAL DEVELOPMENT IN LATIN AMERICA, three (3) credits, three (3) lecture hours per week. Critical analysis of the theories of social change and political development. Emphasis will be given to those elements of social and political change which bear on the level of political participation. The applicability of these theories will then be studied and their usefulness as an analytical scheme to explain the peculiarities of the political evolution in different Latin American countries.

CIPO 4655 SOCIOLOGÍA POLÍTICA LATINOAMERICANA, (3) credits, three (3) contact hours per week. Description and analysis of main political phenomena present in contemporary Latin America.

CIPO 4665: LATIN AMERICAN POLITICAL SOCIOLOGY, three (3) credits, three (3) lecture hours per week. Pre-requisite: Only for senior students. Description and analysis of the political phenomena in Latin America; factors, problems and its viability. Integration and a socio-cultural, economic and political function.

CIPO 4715: NATIONALISM, COLONIALISM AND IMPERIALISM, three (3) credits, three (3) lecture hours per week. Pre-requisite: Having passed as least one other course in political sciences. The imperialist ideas, theories, experiences and behavior. The development of the study of these phenomena, starting from traditional, historical and institutional political viewpoints, and the new contributions of psychology and political sociology.

CIPO 4725: SEMINAR: POLITICAL THOUGHT IN THE CARIBBEAN, three (3) credits, three (3) lecture hours per week. Pre-requisite: Department chair's permission. Critical and intensive analysis of some of the works of some of the principal exponents of political thought in the Caribbean area. (Each semester, the professor and his/her students will choose the authors they wish to study).

CISO

CISO 1005: INTERSOCIAL IMPACT OF THE DISABLED, (3) credits, (3) contact hours per week. Introduction to studies in the sociological environment in which a disabled person develops and functions. Problems of social acceptance to disabled people are emphasized and the negative activities experienced. Sociological urban problems are analyzed which may affect them and social standards which may be suggested to solve them.

CISO 1006: PSYCHO-SOCIAL IMPLICATIONS OF THE PERSON WITH DISABILITIES, three (3) credits, three (3) contact hours per week. Pre-requisite: CISO 1005. Introduction to the study of the development and functioning of the personality of the person with disabilities. Emphasis will be given to the disabled person's adaptation to his/her impediment and to the emotional frustrations that result from feeling different from the rest. The effects felt by the disabled, the mechanisms for adjustment or defense that he/she develops for adapting to society.

CISO 3006: SOCIO-ECONOMIC PROBLEMS OF PUERTO RICO. Pre-requisite: CISO 3122. three (3) credits, three (3) contact hours per week. A study of the problems of Puerto Rico's social, economic and political institutions. Recent research, as well as other available sources of information will be used to familiarize students with the problems of current Puerto Rican society. The course includes lectures, discussion of readings, study of research and raising new problems.

CISO 3025: CONTEMPORARY PEASANT MOVEMENTS IN LATIN AMERICA, 2three (3) credits, three (3) contact hours per week. Pre-requisite: CISO 3122. Study of contemporary mobilization peasant movements in Latin America: Brazil, Colombia and Mexico.

CISO 3061: INTRODUCTION TO THE SOCIO ECONOMIC AND POLITICAL DEVELOPMENT OF THE CARIBBEAN I, three (3) credits, three (3) contact hours per week. Analysis of the historical events that fostered the colonial economy and social structure of the Caribbean region. Included are the colonial state and emerging cultures until the imperialist expansion of 1898; the conquest and colonization of the Spanish area; Development of the slave economy in the English islands and the French Antilles; Haiti's independence; and the Hispanic-American-Cuban war.

CISO 3062: INTRODUCTION TO THE SOCIO ECONOMIC AND POLITICAL DEVELOPMENT OF THE CARIBBEAN II, three (3) credits, three (3) contact hours per week. Analysis of the imperialist expansion of 1898 in the Caribbean region, its effects on the socioeconomic structures, and its political and cultural expression until the crisis of 1930. The emergence and impact of nationalism, populism and Cuban socialism in the region.

CISO 3071: INTRODUCTION TO THE SOCIO ECONOMIC AND POLITICAL DEVELOPMENT OF LATIN AMERICA I, three (3) credits, three (3) contact hours per week. Study of the socioeconomic and political structures of the process of conquest and colonization and the study of the emergent culture. Secondly, the same analysis but from the wars of independence to the consolidation of the liberal state. Study of the socioeconomic and political structures of the process of conquest and colonization and the study of the emergent culture. Secondly, the same analysis but from the wars of independence to the consolidation of the liberal state.

CISO 3072: INTRODUCTION TO THE SOCIO ECONOMIC AND POLITICAL DEVELOPMENT OF LATIN AMERICA II, three (3) credits, three (3) contact hours per week. Study of the socioeconomic and political structures of the liberal state. The imperialist expansion from the emergence of monopolistic capitalism to the crisis of the 1930 decade; the emergence of populism and its exhaustion; the socialist and neo-fascist stages and the late process of democratization of the neo-fascist regimes.

CISO 3121: INTRODUCTION TO SOCIAL SCIENCES I, three (3) credits, three (3) contact hours per week. The scientific study of human interaction by examining the scientific method and its application to the study of human behavior. An examination of the social forces which have shaped the world in which we live. The analysis of the individual as part of the social problem by studying the basic principles of sociology, anthropology and

psychology. An analysis of the basic principles of the theory of personality and elements that affect its formation.

CISO 3122: INTRODUCTION TO SOCIAL SCIENCES II, three (3) credits, three (3) contact hours per week. The scientific study of human interaction by examining the scientific method. A study of the principle of social institutions with an emphasis on the family, problematic political situations and the economic powers that affect social life. Concepts in ecology, demography, and universal social processes will be studied.

CISO 3131: INTRODUCTION TO SOCIAL SCIENCES I – HONOR, three (3) credits, three (3) contact hours per week. Scientific study of interaction and its application to the study of human behavior. Study of the social forces that have forged the world we live in. A study of the basic principles of sociology, anthropology and psychology to analyze the individual's incorporation to the spectrum of social problems. An analysis of the basic principles of the theory of personality and elements that affect its formation. The course requires reading and analysis of original texts. Also the student will be required to submit research monographs. The seminar method will be used.

CISO 3132: INTRODUCTION TO SOCIAL SCIENCES II – HONOR, three (3) credits, three (3) contact hours per week. Scientific study of human interaction through a thorough examination of the scientific method. The principal social institutions will be studied and emphasis will be given to the study of political problems and economic forces.

CISO 3155: FUNDAMENTS OF STATISTICAL REASONING, three (3) credits, three (3) contact hours per week. The purpose of this course is to teach students the basic concepts in statistical reasoning, as well as the changes in the mechanics involved in the computation of basic statistical measurement as applied to the socio-psychological problems. Emphasis is placed on why and when to use specific measurements and the limitations this presents.

CISO 3156: COMPUTER ASSISTED RESEARCH IN THE SOCIAL SCIENCES, three (3) credits, three (3) contact hours per week. Introduction to and training in the methods and techniques of data processing using the principal statistics computer software available for research in the social sciences. Includes preparing, coding and processing programs oriented to statistics in the social sciences.

CISO 3186: SOCIETY AND CULTURE IN THE CARIBBEAN, three (3) credits, three (3) contact hours per week. Interdisciplinary study of the contemporary society and culture in the countries of the Caribbean Basin, with particular emphasis in the transformations that have taken place in the English and Spanish-speaking societies of the region.

CISO 3316: LITERATURE AND SOCIETY IN IBERO-AMERICA I, three (3) credits, three (3) contact hours per week. This course intends to examine the strategies of discourse with which literature has represented Ibero-American societies. This is a one-year course. Texts from the period of the Conquest to the end of the nineteenth century will be studied.

CISO 3317: LITERATURE AND SOCIETY IN IBERO-AMERICA II, three (3) credits, three (3) contact hours per week. This course intends to examine the strategies of discourse with which literature has represented Iberian-American societies. Texts from the last two decades of the 19th century to the beginnings of the 21st century will be studied.

CISO 4035: PROBLEMS OF INDEPENDENCE IN THE CONTEMPORARY CARIBBEAN, three (3) credits, three (3) contact hours per week. This course will study the problems of the independence phenomenon in the Caribbean. From the methods used in the anti-colonialist struggle from the times of the National Liberation War in the case of Haiti in the 19th century to the Cuban Revolution of the 20th century; the general characteristics of the new independent nations, specially English-speaking Caribbean, and the social, cultural, economic and political problems of these countries.

CISO 4075: THE UNITED STATES AND THE CARIBBEAN AREA, three (3) credits, three (3) contact hours per week. The first part of the course offers a historical outline of the diplomatic, historical and cultural relations of the United States with the countries of the Caribbean Zone, including the Antilles, Central America, Colombia and Venezuela. This will be followed with the study of the contemporary relations and conditions.

CISO 4105: POPULAR MOVEMENTS IN THE CARIBBEAN, three (3) credits, three (3) contact hours per week. Pre-requisite: reserved for Senior students. Comparative analysis of four popular movements in the Caribbean: their historical roots, sociological composition, their economic demands, political organization and success.

CISO 4115: PROBLEMS AND PERSPECTIVES IN LATIN AMERICA, three (3) credits, three (3) contact hours per week. Basic social elements common to the national development of Latin American countries. Analysis of the problems of social stratification, political development and economic development, with emphasis on the period following the Independence Wars. Special attention will be given to aspects related to landholding, the distribution of income, accessibility to educational agencies, the military casters; revolution as an instrument for change or for resistance to change, and the social implications of urbanism and technological development. Intensive study of the impact these on four societies: Argentina, Mexico, Venezuela and Cuba.

CISO 4155: THE CHURCH AS A SOCIO-POLITICAL FACTOR IN LATIN AMERICA, three (3) credits, three (3) contact hours per week. Pre-requisite: previous consultation with

academic advisor. Study of the social and political function of this institution in the stages of the development of Latin America from the independence period to the present.

CISO 4325: NATIONALISM IN PUERTO RICO, three (3) credits, three (3) contact hours per week. Analysis of the processes of formation of nationalist ideologies and movements in Puerto Rico.

CISO 4337: NATIONALISM IN LATIN AMERICA AND THE CARIBBEAN, three (3) credits, three (3) contact hours per week. Analysis of the processes of formation of nationalist ideologies and movements in Latin America and the Caribbean.

CISO 4365: PROBLEMS OF UNDERDEVELOPMENT IN LATIN AMERICA AND THE THEORIES OF NATIONAL DEVELOPMENT, three (3) credits, three (3) contact hours per week. An examination of the Latin American scientific thought regarding the problems of underdevelopment, the failure of the economic development theories, and the dependency theory or peripheral capitalism that dominates contemporary thought in the Latin American social sciences.

CISO 4375: SEMINAR ON COLONIALISM, three (3) credits, three (3) contact hours per week. Detailed analysis of the theoretical schemes of Fanon, Mannoni, Memmi and Wallerstein on the effects of colonialism. Sociological study of literary works which describe the colonial society in selected societies. Operational de-colonization alternatives.

CISO 4505: SEMINAR: MODERN IMPERIALISM, three (3) credits, three (3) contact hours per week. The examination through selected readings and reports by the students of the various aspects and problems of the expansion beyond their national borders of the Western powers, starting at the resurgence of imperialism in the late XIX Century to the disintegration and transformation of the existing imperialist structures in the modern world. Greater emphasis will be given to the study of colonialism in the Latin American region.

CISO 4521: SEMINAR AND STUDY TOUR IN THE CARIBBEAN REGION I, three (3) credits, twenty (20) lecture hours and twenty-five (25) hours of laboratory. Pre-requisite: any course on the Caribbean. A comparative study of the social, economic and political problems of three Caribbean islands: one Dutch, one French and one Spanish-speaking.

CISO 4522: SEMINAR AND STUDY TOUR IN THE CARIBBEAN REGION II, three (3) credits, twenty (20) lecture hours and twenty-five (25) hours of laboratory. Pre-requisite: CISO 4521. Seminar and study tour to the selected communities analyzed in CISO 4521. The tour will take place during the summer.

GEOG

GEOG 3155: ELEMENTS OF GEOGRAPHY, three (3) credits, three (3) lecture hours per week. Identification, analysis and systematization of the physical and cultural elements of the earthly space and how they exist interrelated and interconnected. The purpose of this course to create consciousness of the harmonious functioning of man and environment.

GEOG 3165: GEOGRAPHY OF PUERTO RICO, three (3) credits, three (3) lecture hours per week. Pre-requisites: GEOG 3155 and CISO 3122. This course deals with the problems of location, size and shape, and the elements of the landscape, including natural resources and the need of their preservation; population, as well as the economic and social structures, and the geographical regions resulting from the use of space.

GEOG 3225: LATIN AMERICAN GEOGRAPHY, three (3) credits, three (3) lecture hours per week. Regional analysis of the geography of Latin America, with emphasis in the interpretation of the economic and cultural development of the different countries in the light of their physical conditions and natural resources.

PSIC

PIC 1005: GENERAL APPLIED PSYCHOLOGY, three (3) credits, three (3) contact hours per week. General introduction to psychology for associate degree students. Basic principles and theories are discussed in a pragmatic reference frame, giving special emphasis to their application.

PSIC 2005: GROWTH AND HUMAN DEVELOPMENT PSYCHOLOGY, (3) credits, (3) contact hours per week. The course offers the student with a scientific analysis integrating basic concepts on nature and the growth process and development of the human being. Biological, psychological and social factors are studied which complete the integrated form of adjustment unique to the individual, its environment, meaning, the formation of character. The processes of change and sequence stages of development from the pre-natal stage, childhood, infancy, adulthood, and aging are differentiated. The student is expected to learn current approaches in scientific research in human development.

PSIC 3003: INTRODUCTION TO PSYCHOLOGY, four (4) credits, four (4) contact hours per week. This course covers numerous fundamental topics of psychology. It is directed to achieve the familiarization of the student with the content and nature of psychology as a science and as a profession, as well as with the scientific method as an instrument for the study of this science. It studies the diverse psychological problems that affect the individual and the different approaches and methodologies to solve them.

PSIC 3005: GENERAL PSYCHOLOGY, three (3) credits, three (3) contact hours per week.

This course offers a sample of the basic topics in psychology. It intends to familiarize the student with the scientific method as an instrument for the study of this science. It studies some of the basic problems of the individual and society and the different approaches and methodologies to solve them.

PSIC 3006: SOCIAL PSYCHOLOGY, three (3) credits, three (3) contact hour per week.

A psychological approach to social life from the point of view of the individual, the psychology of institutions and of social conflicts, and also a critical analysis of the relation between culture and personality.

PSIC 3015: THE DEVELOPMENT OF PERSONALITY: three (3) credits, three (3) contact hours per week. This course studies the process of development of personality and the diverse theories on this topic.

PSIC 3016: PSYCHOPATHOLOGY, three (3) credits, three hours of lecture per week.

Psychological analysis of the dynamics, diagnosis and prognosis of individual and group abnormal behavior. It specifically analyzes major neuroses and psychoses, personality disorders such as sociopathies, drug and alcohol addiction, sexual deviations, etc.; and acute and chronic brain disorders. It presents a global vision of the various psychotherapies used for the treatment of abnormal behavior.

PSIC 3025: HUMAN DEVELOPMENT, three (3) credits, three (3) contact hours per week.

The study of human development from infancy to adulthood, clarifying the importance of genetic or environmental factors in the evolutionary process. Describes the facts that characterize the physical, intellectual, moral and social aspects of each stage of development. The course expounds the better recognized theories interpreting human development.

PSIC 3046: HISTORY OF PSYCHOLOGY, three (3) credits, three (3) contact hours per week. A study of the development of psychology and the schools of thought that have contributed to it.

PSIC 3048: GROUP DYNAMICS, (3) credits, (3) contact hours per week. Pre-requisite:

PSIC 3115, 3006 or permission. Study of the structure and functioning of groups, interaction within groups and leadership in groups. Special attention will be accorded to the most important theoretical and methodological contributions achieved in this field.

PSIC 3057: INTRODUCTION TO THE CONSTRUCTION OF TESTS, three (3) credits, three

(3) contact hours per week. This course covers the elementary principles of test construction. The following topics are included: analysis of placements, design of

performance, (yield) theses, framing questions, analysis of questions, some concepts of trustworthiness and validity.

PSIC 3065: MOTIVATIONAL PSYCHOLOGY, three (3) credits, three (3) contact hours per week. The course will explore the nature and scope of research in several of the most important areas in the study of human motivation, emphasizing the problems and controversial points involved in the structure of a theory of motivation. Research papers chosen for this purpose, will be discussed and evaluated.

PSIC 3088: PSYCHOLOGICAL ANALYSIS OF THE SOCIAL AND CULTURAL CHANGES IN PUERTO RICO, three (3) credits, three (3) contact hours per week. Examination of the socio-cultural changes in Puerto Rican medium seen from the viewpoint of psychology. The basic interaction processes involved will be considered, relating them with learning, motivation and social perception, highlighting values, attitudes, expectations and the role of communication in social change.

PSIC 3107: PSYCHOLOGY, ETHICS AND THE DEVELOPMENT OF MORAL JUDGMENTS, three (3) credits, three (3) contact hours per week. Pre-requisite: PSIC 3115. Psychological and moral aspects, and ethical behavior are studied. The following topics are discussed: congruencies between judgments and actions, cognitive development and the concept of the law, respect, honor and authority.

PSIC 3116: INDUSTRIAL PSYCHOLOGY, three (3) credits, three (3) contact hours per week. Study of psychological techniques and their application in the industrial and business fields. Among other topics, procedures for promotion, promotions and selection of employees are studied. Study of the psychological factors which contribute to efficiency in an industrial commercial organization.

PSIC 3345: PSYCHOLOGICAL APPROACH TO GROUPS IN A LABOR CONTEXT, three (3) credits, three (3) contact hours per week. Presents the theories and models of group dynamics in organizations. Discusses the different types of groups and their use. Detailed analysis of group psychology and its implications for team work.

PSIC 3346: STRATEGIES FOR THE DEVELOPMENT FOR HIGHER LEARNING ORGANIZATIONS, three (3) credits, three (3) contact hours per week. Discusses the principal theories of organizational learning. Presents models for learning at the individual and organizational level. Analyzes the different methodologies and ways of generating learning within organizations.

PSIC 3347: STRATEGIES FOR GATHERING INFORMATION FOR DECISION-MAKING, three (3) credits, three (3) contact hours per week. Presents the techniques used more often in organizations to gather data for decision-making. Qualitative and quantitative techniques are studied. Skills in presentation and divulging information are practiced. Problem solving and decision-making processes are analyzed. Students will be provided with the opportunity to practice the data gathering skills during class exercises and a supervised external experience in a work setting chosen by students.

PSIC 3348: PERSONALITY THEORIES APPLIED TO THE LABOR CONTEXT, three (3) credits, three (3) contact hours per week. Presents the personality theories and their application in the different organizational processes. The role of personality in the processes of selection, placement, evaluation, industrial psychology, team work, and interpersonal relations are studied. The research aspects of the study of personality are discussed.

PSIC 3349: THE PSYCHOLOGY OF INDIVIDUAL DIFFERENCES AND ITS APPLICATION TO ORGANIZATIONS, three (3) credits, three (3) contact hours per week. Discusses how the psychology of individual differences affects organizational practices and dynamics. Aspects such as personality, stress, anxiety, depression and interpersonal relations affect the mood and culture of an organization. Presents aspects of cultural diversity and its relations to organizational practices in the world context.

PSIC 4017: THE EXPERIMENT AND OTHER METHODS OF PSYCHOLOGICAL RESEARCH, three (3) credits, three (3) contact hours per week. Pre-requisites: PSIC 3003, PSIC 3116, CISO 3155, PSIC 3057. Introduction to the scientific study of behavior with special emphasis in the laboratory methods, the design of the experiment and the gathering and analysis of data. Lectures will highlight the result of scientific studies and their theoretical interpretation with special attention to findings of recent studies in the field of psychology.

PSIC 4018: EXPERIMENTAL PSYCHOLOGY LABORATORY, one (1) credit, two (2) hours lecture per week. Co-requisite: PYSC 4017. The student shall do laboratory work representative of problems in areas such as learning, forming concepts, emotions and social interaction.

PSIC 4025: PHYSIOLOGICAL PSYCHOLOGY, three (3) credits, three (3) contact hours per week. Pre-requisite: PSIC 3003, CIBI 3002. Introduction to the physiological foundation for human behavior, the structure and functioning of the nervous system and its relation to the psychological phenomena of sensation, perception, learning, thought motivation and emotions. Special attention is given to autonomic and cortical, and to the basis for movement.

PSIC 4026: PHYSIOLOGICAL PSYCHOLOGY LABORATORY, one (1) credits, two (2) lecture hours per week. Pre-requisite: PSIC 3003, CIBI 3002. Includes experiments and demonstrations that show the relation between physiological and the behavior exhibited.

PSIC 4036: ORGANIZATIONAL DEVELOPMENT, three (3) credits, three (3) contact hours per week. The most used strategies of diagnostic and organizational change in the field of organizational development. Emphasis is made on the models and theories of planned change and the evaluation of organizational interventions.

PSIC 4047: PSYCHOLOGY OF THE CONSUMER, three (3) credits, three (3) contact hours per week. Pre-requisite: PSIC 4009. Begins the study of the psychology of the consumer as is applicable in Puerto Rico. The following areas are examined among others: models of consumer behavior, the needs of the consumer, protection of the consumer, TV ratings, industrial promotion and evaluation of the promotion.

PSIC 4211: INTERNSHIP IN INDUSTRIAL ORGANIZATIONAL PSYCHOLOGY SEMINAR I, three (3) credits, three (3) contact hours per week and 120 hours of practice in the workplace. Pre-requisites: PSIC 3003, PSIC 3116, PSIC 3057, PSIC 3345. The student will apply in his practice the knowledge and skills learned in the specialization courses; will participate in industrial organizational psychology activities in the areas of recruitment, selection, evaluation, training, motivation, team work, conflict management, decision-making, problem solving and research.

PSIC 4212: INTERNSHIP IN INDUSTRIAL ORGANIZATIONAL PSYCHOLOGY SEMINAR II, three (3) contact hours per week and 120 hours of practice in the workplace. Pre-requisite: PSIC 4211, PSIC 4036. The student will apply in his practice the knowledge and skills learned in the specialization courses; will participate in industrial organizational psychology activities in the areas of recruitment, selection, evaluation, training, motivation, team work, conflict management, decision-making, problem solving and research.

PSIC 4215: THE ADULT EMPLOYEE AND RETIREMENT, three (3) credits, three (3) contact hours per week. Presents the theories of the development of adults and their learning. Makes an analysis of the myths and beliefs on old persons. Discusses the implications of retirement or job-termination in the adult person. The most up to date research in the field of aging and labor productivity.

SOCI

SOCI 3245 PRINCIPLES IN SOCIOLOGY, (3) credits, three (3) contact hours per week. Fundamental concepts in sociology; society; social action, human nature, communication, interaction, competency, conflict, adaptation and assimilation, groups, social rules, status,

and change. A general examination which provides the student with the tools needed to interpret correct concrete situations, will create the foundations for scientific preparation post social sciences.

SOCI 3175 LATIN AMERICAN SOCIOLOGY, (3) credits, (3) hours per week. The main Latin American schools of thought from yesterday and the present are studied as well as the phenomena, objectives and types of society and culture evident in Latin America, considered the hypothesis of a homogeneous area.

SOCI 4187 SOCIOLOGICAL RESEARCH METHODOLOGY, (3) credits, three (3) contact hours per week. Study of the different paradigms which constitutes scientific practice. An examination of the approaches made in the construction of the study object, its historical-social specifics and the obstacles and epistemological breakings this study confronts.

SOCI 1001 SOCIAL FOUNDATIONS IN ENVIRONMENTAL EDUCATION, (3) credits, three (3) contact hours per week. Integrated course on the fundamental principles of Social Science and their application to environmental social and natural problems. An inclusion is made to the legal aspects of environmental protection.

SOCI 3355 LATIN AMERICAN POPULATION AND PROBLEMS, (3) credits, three (3) contact hours per week. Analysis of the social institutions in Latin America. What is Latin America? Ethnology and demography. Family, education, government system and the military. Unification of the Law System. Cultural and economic integration. Religion and society in Latin America. Common and different interests. The interamericanism.

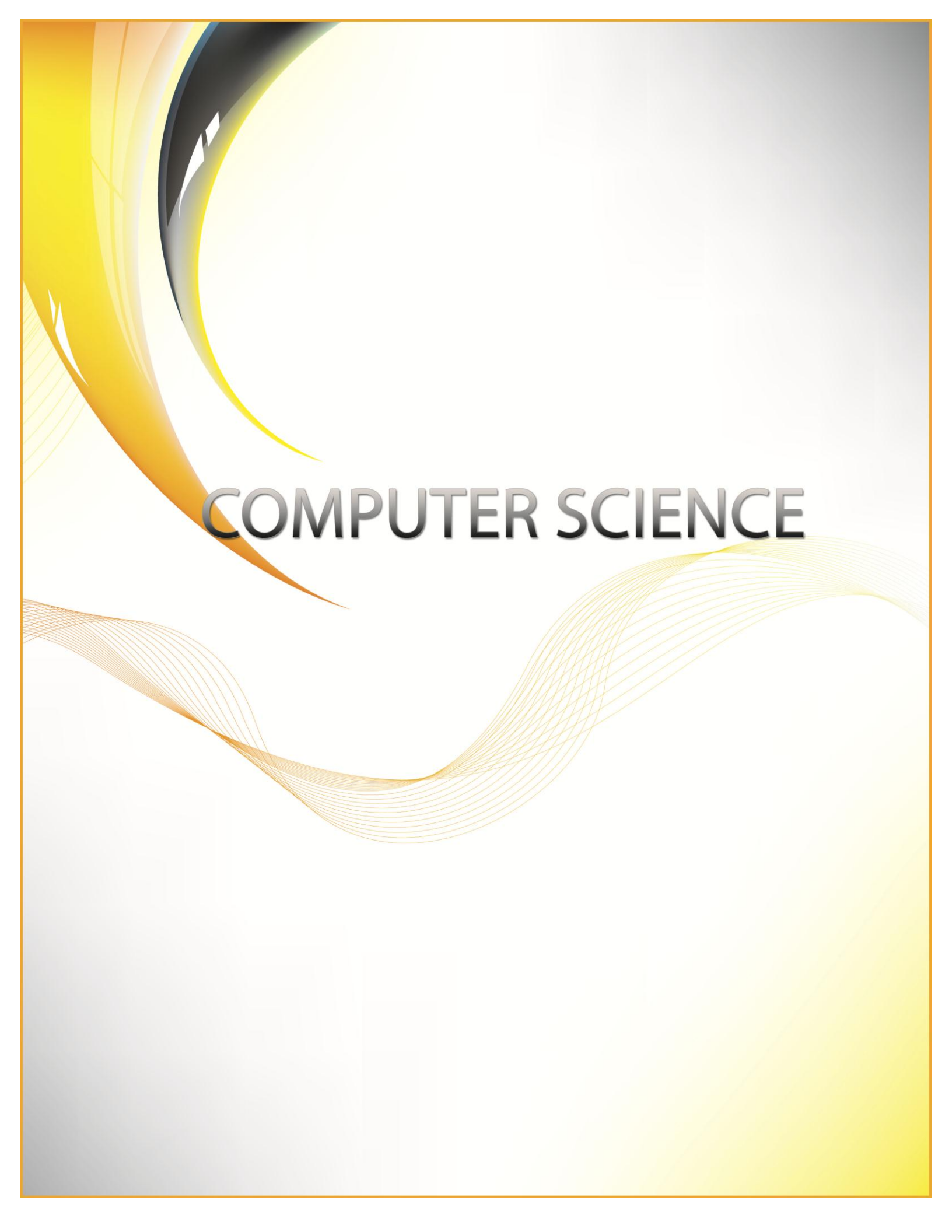
SOCI 4045 CARIBBEAN HISPANIC RACIAL AND CULTURAL RELATIONS, (3) credits, three (3) contact hours per week. Slavery and racial relations in these three Caribbean Hispanic societies are present in a comparative study which tries to isolate the factors which may explain the differences and parallelisms in these three countries. The fact that the Dominican Republic abolished slavery earlier than any of the other two societies, while the sugar cane economy began to develop much later in that country, makes this study able to propose a link between slavery and racial relations and the link between the sugar cane rush and racial relations.

SOCI 3275 SOCIETY AND CONDUCT VARIATION, (3) credits, three (3) contact hours per week. Pre-requisite: CISO 3122, (3) credits, three (3) contact hours per week. Pathological aspects of modern society: poverty, crime, personal disorganization and the family; overpopulation, alcoholism and prostitution.

SOCI 3277 WOMEN IN SOCIETY AND RIGHTS, (3) credits, three (3) contact hours per week. Pre-requisite: CISO 3122. Analysis of women's situation in different societies and its evolution with emphasis on the socio cultural, political and justice development in Puerto Rico. A study of the institutions which take care of the affairs related with the protection and integral human growth of women in Puerto Rican society.

SOCI 3285.GROUP DYNAMICS (3) credits, three (3) contact hours per week. Pre-requisite: CISO 3121 and SOCI 3261. Philosophy and basic concepts operational in groups of our democratic life system. Group energy, cohesion, structure, emotional factors, leadership, communication and its effects. The class will become a study laboratory of these topics.

SOCI 3335 SOCIAL PROBLEMS, (3) credits, three (3) contact hours per week. Pre-requisite: CISO 3121 and CISO 3122. The course begins as a sociological orientation about the conceptualization of social problems. Different aspects of the concept are analyzed specially by those and the reasons why social problems are considered. The different factors which give an explanation to the causes of social problems are studied, such as social disorganization, deviated conduct and the conflict of values.



COMPUTER SCIENCE

BACHELOR OF SCIENCE IN COMPUTER SCIENCE (1224)

The curriculum provides a solid base in the study of Computer Science, with a background in mathematics, natural science, social science and the humanities. The program includes theoretical and practical aspects of computing and the necessary fundamentals to perform in a technological advanced society. Graduates of the program can work in system programming, maintenance of operating systems, data bases, compilation or validation of computerized systems. They will also have the basic knowledge to become supervisors of computer centers, software designers (including video games) or researchers in robotics, computational vision or forensic computer analysis. In addition, the curriculum provides a solid base in science and mathematics to enable graduates to pursue graduate studies. The program is currently accredited by the *Accreditation Board for Engineering and Technology* (ABET).

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CCOM 3001 ³	Computer Programming I	5
CCOM 3025 ³	Intro. to Computer Systems	3
CIBI 3001	Intro. to Biological Sciences I	3
INGL 3101 ³⁰	Basic English II	3
INGL 3113	Basic English Oral Practice I	0
MATE 3171	Pre-Calculus	3
Total		17

Second Semester

CODE	DESCRIPTION	CREDITS
CCOM 3002 ³	Computer Programming II	5
CCOM 3020 ³	Discrete Mathematics	3
CIBI 3002	Intro. to Biological Sciences II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English Oral Practice II	0
MATE 3172	Pre-Calculus II	3
Total		17

³⁰ Students who score above 580 on the English language part of the College Board Examination will take INGL 3103 - Intermediate English I and INGL 3104 - Intermediate English II. This sequence does not require the oral practice laboratory.

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CCOM 4005 ³	Data Structure and Algorithmic Analysis	3
CCOM 3035	Computer Organization	3
MATE 3031	Calculus I	4
ESPA 3101	Basic Spanish I	3
CCOM	Departmental Elective	3

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CCOM 3015 ³	Computers in Society	3
CCOM 3045 ³	File Processing	3
ESPA 3102	Basic Spanish II	3
MATE 3032	Calculus II	4
MATE 3026	Intro. to Statistics with Computers	3
Total		16

THIRD YEAR

FIRST SEMESTER

Code	Description	Credits
CCOM 3041 ³	Operating Systems	3
CCOM 4025 ³	Organization of Computer Programming Languages	3
ESPA 3208	Writing and Style	3
FISI 3011	University Physics I	3
FISI 3013	University Physics Lab. I	1
	Elective	3
Total		16

Second Semester

Code	Description	Credits
CCOM 4115 ³	Data Base Design	3
MATE 4031	Lineal Algebra	3
FISI 3012	University Physics II	3
FISI 3014	University Physics Lab. II	1
INGL 3015	English for Science and Technology	3
CCOM	Departmental Elective	3
Total		16

FOURTH YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CCOM 4075 ³	Programming Engineering	3
	Elective	3
	Elective	3
	Elective in Humanities	3
	Elective in Social Sciences	3
	Departmental Elective	3
	Total	18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CCOM 4095 ³	Programming Engineering Project	3
	Departmental Elective	3
	Elective	3
	Elective in Humanities	3
	Elective in Social Sciences	3
	Total	15

DEPARTMENTAL ELECTIVES

CODE	DESCRIPTION	CREDITS	CLASSIFICATION ¹
CCOM 3027 ³	Object Oriented Prog. Language	3	Intermediate
CCOM 3036 ³	Visual Programming	3	Intermediate
CCOM 3042 ³	Computer Architecture	3	Advanced
CCOM 3115 ³	Microprocessor Applications	3	Advanced
CCOM 3135 ²³	Topics In Computer Science	1-6	Variable ³¹
CCOM 3985	Undergraduate Investigation	1-6	Variable
CCOM 4018 ³	Networks	3	Advanced
CCOM 4019 ³	Web Programming	3	Advanced
CCOM 4125 ³	Artificial Intelligence	3	Advanced
CCOM 4135 ³	Advanced System Programming	3	Advanced
CCOM 4306 ³	Image Design For Internet Apps.	3	Intermediate
CCOM 4305 ³	Introduction To Web Design	4	Advanced
CCOM 4307 ³	Troubleshooting and Maintaining PC's	4	Advanced

Total credits 133

³¹ Depending on topic.

Notes:

1. Students admitted as of August 2009 must take a minimum of six (6) credits of their departmental electives from among those classified as advanced electives.
2. Some of the topics include Programming for the Internet, Java Programming, Validating Computerized Systems, among others.
3. Students admitted or readmitted after August 2008:
 - a. must earn a minimum concentration index of 2.00 including departmental electives.
 - b. must pass all major courses (CCOM) with at least a C.

FACULTY

Adames Ramos, Melquíades, *Professor*, M.B.A., Management of Information Systems, Universidad del Sagrado Corazón, Puerto Rico.

Colón Colón, Luis, *Professor*, M.S., Computer Sciences, University of Arkansas, Fayetteville.

Córdova Iturregui, Javier, *Professor*, Ph.D., Computer Sciences, University of Florida, Gainesville.

Pérez Arnau, Emilio, *Instructor*, M.S., Computer Sciences, Florida Institute of Technology.

Puig Hernández, José, *Professor*, M.S., Program Engineering, Florida Institute of Technology.

Ramírez Toledo, Aixa, *Professor*, M.S., Applied Mathematics, Universidad de Puerto Rico.

Scott Destouches, Philippe, *Professor*, Ed.D., Research and Statistics, University of Massachusetts.

Torres Herrero, Norma, *Professor*, M.S., Computer Science, Mississippi State University.

LIST OF COURSES

CCOM

CCOM 3001: COMPUTER PROGRAMMING I, five (5) credits, five (5) contact hours per week. The course introduces students to the basic concepts of a computer system, its history, and the necessary concepts for the creation, encoding, documentation, and debugging of programs. It also provides acceptable programming techniques by use of a high level language.

CCOM 3002: COMPUTER PROGRAMMING II, five (5) credits, five (5) contact hours per week. Pre-requisites: CCOM 3001. Co-requisite MATE 3171. This course was designed as a continuation of CCOM 3001 delves deeper into the topics presented in the first part. It includes such topics as recursion, sorting, pointers, chained lists, search and ordering algorithms, objects and others.

CCOM 3015: COMPUTERS IN SOCIETY; three (3) credits, three (3) contact hours per week. Integration of concepts and theories presented in concentration courses. It emphasizes the ethical questions in computing. Matters of privacy, security and auditing are discussed. It also incorporates the evaluation of today's technology and its uses in solving problems.

CCOM 3020: DISCRETE MATHEMATICS, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3171. This course is designed for students who attend their first or second year in the Computer Science program or a Mathematics program. In this course students will learn techniques to produce elementary mathematical demonstrations. The course also will introduce students to topics related to sets or processes that can be enumerated or associated with subsets of the natural numbers. The topics that will be discussed will be necessary for the other courses in mathematics and computer science.

CCOM 3025: INTRODUCTION TO COMPUTER SYSTEMS, three (3) credits, three (3) contact hours per week. The course introduces the organization and structure of a computer system. Students learn the basic components of logical and arithmetic circuits, binary arithmetic, and representation of numbers

CCOM 3027: OBJECT ORIENTED PROGRAMMING LANGUAGE, three (3) credits, three (3) contact hours per week. Pre-requisite: CCOM 3002. The course provides techniques and programming strategies to solved problem in an object-oriented programming language. It explores the study of object oriented programming.

CCOM 3035: COMPUTER ORGANIZATION, three (3) credits, three (3) contact hours per week. Pre-requisites: CCOM 3025. This course gives students the basic concepts of computer structures and architecture, and machine language. It also teaches assembling language, direction techniques, , input, file production and sub-routines, among others.

CCOM 3036: VISUAL PROGRAMMING, three (3) credits, three (3) contact hours per week. **Pre-requisite:** CCOM 3002. Detailed study of the writing, syntax and encoding of a visual programming language.

CCOM 3041: OPERATING SYSTEMS, three (3) credits, three (3) contact hours per week. **Pre-requisite:** CCOM 4005 and CCOM 3035. This course provides the basics of modern operating systems. It studies such concepts as creating, handling, planning and synchronizing processes, managing memory and virtual memory, creating and handling files, I/O system management, and protection and safety issues.

CCOM 3042: COMPUTER ARCHITECTURE, three (3) credits, three (3) contact hours per week. **Pre-requisite:** CCOM 3035. This course studies the main components of a computer system, and explores further the concepts studied in CCOM 3035. Bus and memory systems, sets of instructions, microprogramming and CPU design, control and structure are studied. It also includes a study of parallel processing elements such as pipelining and processing by multiple processors.

CCOM 3045: FILE PROCESSING, three (3) credits, three (3) contact hours per week. **Pre-requisite:** CCOM 4005. This course provides the concepts, terminology, and file organization and processing techniques, including sequential and random files. Through this course, student will become acquainted with the characteristics and use of different storage units. Students will design programs using file processing.

CCOM 3115: BASIC MICROPROCESSOR APPLICATIONS, three (3) credits, three (3) contact hours per week. **Pre-requisite:** CCOM 3002. The course includes the study of the theory of combinational and sequential circuits, the structure and programming of microprocessors. Students become familiarized with the basic concepts of microprocessors and their applications.

CCOM 3135: TOPICS IN COMPUTER SCIENCE, three (3) credits, three (3) contact hours per week. **Pre-requisite:** CCOM 3002 and authorization from Department Chair. This course presents topics of current interest which are not covered in the regular courses. The topics to be discussed will be determined by the faculty of the department when the course is offered.

CCOM 3985: UNDERGRADUATE RESEARCH, two (2) credits, six (6) contact hours per week. **Pre-requisite:** None. The course introduces basic elements of computer systems, their history and basic fundamentals, necessary to create, codify, document, test and refine computer programs. In addition, it includes accepted programming techniques, using a high level language.

CCOM 4005: DATA STRUCTURE AND ALGORITHMIC ANALYSIS, three (3) credits, three (3) contact hours per week. Pre-requisite: CCOM 3002. Co-requisite: MATE 3175. This course is designed to strengthen the study of data structure introduced in CCOM 3002 (Computer Programming II, such as lists and stacks. New data structures such as binary trees and tails are studied. The practical approach will be enhanced during the course by means of the use of techniques for the analysis and design of efficient algorithms. The results of this practice will be incorporated into decisions for the design of data management systems.

CCOM 4018: COMPUTER NETWORKS, three (3) credits, three (3) contact hours per week. Pre-requisite: CCOM 3041. The goal is to teach the fundamental concepts and principles of networking, focusing particularly on how they apply to the Internet. The course will cover a wide range of topics (see the lecture schedule for a listing of topics). While the class has a textbook, we will not follow its order of presentation but will instead use the text as a reference when covering each individual topic. The course will also have a substantial programming project, so students get hands-on experience.

CCOM 4019: WEB PROGRAMMING - PHP/MySQL, three (3) credits, three (3) contact hours per week. Pre-requisite: CCOM 3045. This course emphasizes techniques used in dynamic website development. It demonstrates the tools needed to design a website with all its components by using PHP programming language and a database administration system (MySQL).

CCOM 4025: ORGANIZATION OF PROGRAMMING LANGUAGES, three (3) credits, three (3) contact hours per week. Pre-requisite: CCOM 3002. This course provides a theoretical and formal background to various aspects of programming language and the compilation process. High-level languages that use various programming paradigms, including declarative, procedure, object-oriented and visual. The execution and programs created by means of construction languages will be emphasized. Students will be required to develop programs in the various languages. .

CCOM 4075: SOFTWARE ENGINEERING, three (3) credits, three (3) contact hours per week. Pre-requisites: CCOM 4115. This course provides a formal background in the area of programming engineering, design, specifications and evaluation of high quality software. Students are required to participate in a group project.

CCOM 4095: SOFTWARE ENGINEERING PROJECT: three (3) credits, three (3) contact hours per week. Pre-requisites: CCOM 3041, CCOM 4025, CCOM 4075. Individual research or practical project in an industry. The student will define, design and apply an application program utilizing programming language (high or low level) or will do research project applying the theory learned and applying the correct programming techniques. Students are required to present a proposal for the project, which will be evaluated and approved by the instructor at the beginning.

CCOM 4115: DATABASE MANAGEMENT SYSTEM DESIGN, three (3) credits, three (3) contact hours per week. Pre-requisite: CCOM 4005. This course introduces the necessary fundamental concepts for the of database systems. During the course students acquire knowledge about various files organization and organization techniques. Data models concepts will be covered and network, relational and hierarchical models will be explored. It will include an examination of security and data integrity techniques. Investigation of a specific data base management system and comparison with other data models. The broadest experience in the course will center on the design and implementation of a data base that includes file security and is user friendly.

CCOM 4125: ARTIFICIAL INTELLIGENCE, three (3) credits, three (3) contact hours per week. Pre-requisite: CCOM 4005. Introduction to basic concepts and techniques of artificial intelligence systems and their applications. It includes a study of the concepts of a programming language applied to the field of artificial intelligence.

CCOM 4135: INTRODUCTION TO COMPILER DESIGN, three (3) credits, three (3) contact hours per week. Pre-requisites: CCOM 4005 and CCOM 4025. Introduction to the translation of high to low level programs through the use and design of compilers. Regular language and the basic steps for designing compilers (scanning, parsing, semantic analysis and code generation) will be studied.

CCOM 4305: INTRODUCTION TO WEB DESIGN, four (3) credits, three (3) lecture hours and one (1) hour of laboratory per week. Pre-requisite: CCOM 4306. The course emphasizes on the techniques to develop web sites it demonstrates the methodology to develop user oriented web pages and presents the necessary tools to design a web site with all its components.

CCOM 4306 IMAGE DESIGN FOR INTERNET APPLICATIONS, three (3) credits, two (2) lecture hours and one laboratory hour per week. Pre-requisite: CCOM 3045. This course emphasizes on various techniques to develop graphics for use on the web, including animations. The course presents the necessary tools to create, manage and optimize graphics for use on the web.

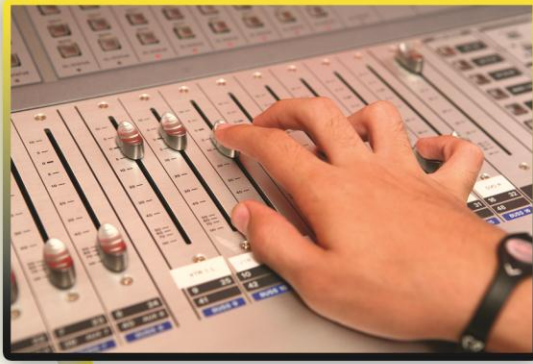
CCOM 4307 TROUBLESHOOTING PCs, four (4) credits, two (2) lecture hours and two (2) laboratory hours per week. Pre-requisite: CCOM 4018. In this course the student develops the skills to search and solve problems in networks, physical components, software and operating systems related to computers (servers and desktops) and personal security. Introduction to security systems (firewalls, antivirus, anti-spam, etc.).

SICI

SICI 3028: APPLICATION SOFTWARE, three (3) credits, three (3) lecture hour per week.

The course provides the theoretical knowledge and the practical skills necessary for using profitably the three types of the most used software: word processors, electronic worksheets, data base handling systems, and other types of programs.

SICI 4008: PRINCIPLES OF DATA PROCESSING FOR BUSINESSES, four (4) credits, four (4) lecture hours per week. The course is directed to students from other programs interested in obtaining basic knowledge in electronic data processing. The fundamentals of scientific and commercial programming are presented. Students are required to prepare various simple projects oriented to their needs.



TELEVISION AND RADIO COMMUNICATIONS



**BACHELOR'S DEGREE IN TELEVISION
AND RADIO COMMUNICATIONS
(4201)**

This program enables students in the different areas of media communication. It integrates both theory and practice as part of the academic dynamics that media education requires. Graduates from this program are prepared in all stages of the production process and direction for radio and television. They are as well trained in the operation, administration and supervision of communication media. Courses in advertising, public relations, journalism, photography, scriptwriting, media programming, multimedia, audio and media management complement the curricular offerings.

CURRICULAR SEQUENCE STARTING AUGUST 2008

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3001	Introductory Mathematics I	3
COMU 3007	History and Development of Radio and Television	3
CIFI 3001	Introduction to Physical Science I	3
ESPA 3101	Basic Spanish I	3
INGL 3101	Basic English I	3
INGL 3113	Basic English I Laboratory	0
COMU 3101	Photography for Communication	2
COMU 3102	Photography for Communication Lab.	<u>1</u>
		Total 18

SECOND SEMESTER

CODE	DESCRIPRION	CREDITS
MATE 3002	Introductory Mathematics II	3
COMU 3005	Fundamentals of Communication	3
CIFI 3002	Introduction to Physical Science II	3
ESPA 3102	Basic Spanish II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English II Laboratory	0
SICI 3028	Applied Programming	<u>3</u>
		Total 18

SECOND YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
HUMA 3101	Introduction to Western Civilization I	3
COMU 3201	Scriptwriting	2
COMU 3202	Scriptwriting Laboratory	1
ESPA 3007	Oral Communication	3
CISO	Elective in Social Science	3
FISI 3009	General Principles in Electronics	<u>3</u>
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
HUMA 3102	Introduction to Western Civilization II	3
_____	Communication Elective	3
MERC 3115	Marketing Principles	3
CISO	Elective in Social Science	3
COMU 3211	Radio Principles	2
COMU 3212	Radio Principles Laboratory	<u>1</u>
Total		15

THIRD YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
CIBI 3001	Introduction to Biological Science I	3
HUMA 3201	Introduction to Western Civilization III	3
COMU 2043	Television Principles	3
COMU 2046	Television Principles Laboratory	0
_____	Statistics course (MATE 3015 or CISO 3155)	3
COMU 3115	Legal and Ethical Aspects in Communication	<u>3</u>
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CIBI 3002	Introduction to Biological Science II	3
HUMA 3202	Introduction to Western Civilization IV	3
_____	Communication Elective	3
_____	General Education Elective	3
_____	Free Elective	<u>3</u>
	Total	15

FOURTH YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
_____	Communication Elective	3
HIST 3245	History of Puerto Rico Compendium	3
_____	Free Elective	3
CISO	Elective in Social Science	3
INGL 3061	Oral and Written Communication	3
_____	General Education Elective	<u>2</u>
	Total	17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
COMU 4035	Radio and Television Programming	3
COMU 4335	Practicum/Seminar	3
_____	Free Elective	3
_____	Free Elective	<u>3</u>
	Total	12

FACULTY

Berrios Hernández, , M.F.A., *Assistant Professor*, Master in Fine Arts, Visual Arts, Universidad Nacional Autónoma de México.

Coutín Ramos, Denise M.A., *Assistant Professor*, Master of Arts, Journalism, Universidad de Navarra, Pamplona, España.

Díaz Hernández, Anilyn, M.A., *Assistant Professor*, Master of Arts, Communications, Universidad de Puerto Rico.

Fonseca Delgado, José, M.A., *Assistant Professor*, Master of Arts, Communications, City University of New York.

Garriga Picó, Ingrid, M.A., *Professor*, Master of Arts, Communications, Fairfield University.

González Cortés, Otilio, Ph.D., J.D., *Professor*, Doctor of Philosophy, Communications, University of Florida; Juris Doctor, Escuela de Derecho, Universidad de Puerto Rico.

Gutiérrez Pérez, Emmanuel, M.M.E., *Assistant Professor*, Master of Musical, Technology, New York University.

Luciano Nieves, Juan, Ph.D., *Professor*, Doctor of Philosophy, Communications, Wayne State University.

Ortega Solís, José, M.A., *Assistant Professor*, Master of Arts, Educational Technology, Universidad del Sagrado Corazón, Puerto Rico.

LIST OF COURSES

AGRA

AGRA 1003: PHOTOGRAPHIC PROCESS LABORATORY I, zero (0) credits, three hours weekly. Associated course: AGRA 1009.

AGRA 1009: PHOTOGRAPHIC PROCESS I, three (3) credits, two (2) lecture hours per week. Associated course: AGRA 1003. Basic course on the fundamental principles, photographic process involved in preparing negatives and positives for reproduction. Theory and practice in handling the photomechanical camera, and the manual process for developing photographs.

COMU

COMU 1026: HISTORY AND DEVELOPMENT OF RADIO AND TELEVISION, three (3) credits, three (3) contact hours per week. An intensive course on the history and development of modern radio and television and their relationship with other social communications media. Examines and evaluates and television as mass media. A study of the social, economic and government controls. Discusses the advancements in modern technology, studio transmitted link, the foundation for the organization, operation and policies that govern radio and television and their role in the communications industry.

COMU 2037: ELEMENTS OF ELECTRICITY AND ELECTRONICS, three (3) credits, three (3) lecture hours per week and three (3) hours laboratory. Introduction to the basic concepts of electricity and their application. DC circuits, Ohms law, AC circuits, magnetic properties of circuits and power supplies. A study of the different electronic components such as resistors, capacitors, inductors and transistors.

COMU 2038: BASIC SKILLS IN RADIO BROADCASTING, three (3) credits, three (3) contact hours per week. Organization and operation of the different work areas in a radio station; theory and practice in preparing and transmitting various types of programs: news, sports, commercials; techniques in remote transmission and others. Students will be able to work in the organization of the station, use technical language, and develop broadcasting skills and other techniques that are used in small radio stations.

COMU 2039: PRACTICE FOR THE DEVELOPMENT OF BASIC SKILLS IN RADIO BROADCASTING, zero (0) credit, three (3) contact hour per week. This laboratory is taken at the same time as COMU 2038. It offers training in selecting and using audio equipment that will aid in improving oral expression and pronunciation. It offers activities where the students will produce original radio programs for evaluation.

COMU 2040: ELEMENTS OF ELECTRICITY AND ELECTRONIC LABORATORY, zero (0) credits, three (3) contact hours per week. Lab for COMU 2037. Basic skills in using electronic measurement equipment, study of electrical properties, circuits and the properties of electronic components. Students will learn soldering techniques and to troubleshoot simple problems.

COMU 2041: ADVANCED TELEVISION AND RADIO PRODUCTION WORKSHOP, three (3) credits, one (1) hour of lecture and five (5) hours of practice per week. Pre-requisites: COMU 1026, COMU 2038. Workshop for the advanced production of radio and TV materials. It includes theory and practice in preparing graphic and photographic material used in the creative production of radio and TV programs. It also includes the evaluation and critique of radio and TV programs.

COMU 2042: SCRIPT WRITING, two (2) credits, one (1) contact hour per week. Pre-requisite: COMU 1026, ESPA 2005. Theory and practice of script writing for diverse communication media. Emphasizes creation, organization and writing of the script.

COMU 2043: PRINCIPLES OF TELEVISION, three (3) credits, three (3) contact hours per week. Introduction to the different technical aspects of television. Theory and practice of production, stage design, lighting, audio equipment operation, videotape recording and direction.

COMU 2044: ADVANCED TELEVISION AND RADIO PRODUCTION, zero (0) credits, five (5) contact hours per week. Includes advanced practice in preparing graphic and photographic material used in the production of radio and television programs.

COMU 2046: PRINCIPLES OF TELEVISION PRACTICE, zero (0) credits, three (3) contact hours per week. Pre-requisites: COMU 2042, COMU 2045. Includes practice in the technical aspects of production, stage design, lighting, audio, equipment, operation, videotape recording and direction.

COMU 2045: SCRIPT WRITING PRACTICE, zero (0) credits, three (3) contact hours per week. Pre-requisites: COMU 1026, ESPA 2005. Includes practice in writing scripts for diverse communication media. Emphasizes the creation, organization and writing of the script.

COMU 3005: FUNDAMENTALS OF COMMUNICATION, three (3) credits, three (3) contact hours per week. Introduction to the basic concepts in the communication process. In depth study of the theories applied to both personal and mass communication. Research into the effects of mass media on individuals and society.

COMU 3007: HISTORY AND DEVELOPMENT OF RADIO AND TELEVISION, three (3) credits, three (3) contact hours per week. A course on the history and development of modern radio and television and their relationship with other social communications media, new technologies and globalization. It discusses the advancements in modern technology, and new distribution platforms. Students are exposed to the ethical principles and the social, economic and government controls that govern radio and television.

COMU 3015: INTERMEDIATE PHOTOGRAPHY, three (3) credits, three (3) contact hours per week. Pre-requisite: AGRA 1009. The course is designed as a continuation of the course Photographic Process I. Technical and creative processes of modern photography will be applied to produce work of professional and commercial quality. Artistic photography will be emphasized.

COMU 3101: PHOTOGRAPHY FOR COMMUNICATION; two (2) credits, two (2) lecture hours per week. Co-requisite: COMU 3102. Basic course on the fundamentals of photography. It includes introduction to the history of photography, theory of light, behavior of sensitive materials, appropriate use of the camera and photographic equipment, basic methods and techniques of image design, development of esthetic appreciation of photographic creation and its application to new technologies.

COMU 3102: LABORATORY FOR PHOTOGRAPHY FOR COMMUNICATION; one (1) credit, three (3) contact hours per week. Co-requisite: COMU 3101. Appropriate use of the camera and photographic equipment. Application of the basic methods and techniques of photographic language for the creation and mastery of images.

COMU 3105: COMMUNICATIONS MEDIA MANAGEMENT, three (3) credits, three (3) contact hours per week. Pre-requisites: COMU 2038, PUCO 1005 and MERC 3115. The course aims to provide Telecommunications students with the required techniques to hold administrative positions in the mass communications media in Puerto Rico and outside the Island. It also aims to give the student the tools for establishing a communications enterprise.

COMU 3115: ETHICAL AND LEGAL ASPECTS OF TELEVISION AND RADIO COMMUNICATIONS, three (3) credits, three (3) contact hours per week. Pre-requisite:

COMU 1026. A study of the legal and ethical fundamentals of Television and Radio Communications. The course studies the constitutional principles upon which the right of free expression is built. It includes a study of legislation, regulations and judicial decisions that limit this freedom of expression. Since radio and television transmissions have subject to stricter regulations, the course explains the reach and justification of this government regulation, and the way in which it affects radio, television and cable TV stations. In

addition, self-regulatory policies in Television and Radio communications are discussed. The ethics of professions related to Television and Radio communications, including journalism, publicity, public relations, and radio production and programming are studied.

COMU 3117: MULTIMEDIA PRODUCTION, three (3) credits, three (3) contact hours per week. This course is an elective of the Television and Radio Communications Department, that looks to integrate the advanced production techniques using multimedia programs. The course aims to give the student the necessary tools to work in the design and production of multimedia projects.

COMU 3201: SCRIPT WRITING, two (2) credits, two (2) lecture hours per week. Pre-requisite: COMU 1026, ESPA 2005. Theory and practice of script writing for diverse communication media. Emphasizes creation, organization and writing of the script. Students will be introduced to the theories of creativity and mass communication to enable them to apply these theories to script development.

COMU 3202: SCRIPT WRITING PRACTICE, one (1) credit, three (3) contact hours per week. Co-requisite: COMU 3021. Includes practice in writing scripts for diverse communication media. Emphasizes the creation, organization and writing of the script.

COMU 3211: PRINCIPLES OF RADIO, two (2) credits, two (2) contact hours per week. Pre-requisite: COMU 3201, Co-requisite: COMU 3212. Introduction to production and direction of radio programs. Students will acquire the knowledge and skills to produce various types of radio programs. Furthermore, they will develop skills in use and managing contemporary sound technologies. Topics related to radio will be studied, such as sound, psycho-acoustics, radio broadcasting systems, publicity, radio programming, production and broadcasting technologies.

COMU 3212: LABORATORY FOR PRINCIPLES OF RADIO, one (1) credit, four (4) contact hours per week. Pre-requisite: COMU 3202, Co-requisite: COMU 3211. Students will develop basic skills in producing and directing radio programs. They will also learn to design, produce and evaluate sound materials for broadcasting. Students will develop speaking, pre-production, direction, recording and editing of sound, and operation of contemporary production and broadcasting technologies.

COMU 4005: TELEVISION ADVERTISING, three (3) credits, three (3) contact hours per week: one hour of lecture and two hours of laboratory work. Pre-requisite: COMU 2041. Creative aspects of writing and producing commercials for television; pre and post production; cost control.

COMU 4006: RADIO ADVERTISING, three (3) credits, three (3) contact hours per week: one hour of lecture and two hours of laboratory work. Pre-requisites: COMU 2038, COMU 2042. Theory and practice of radio advertising, radio as an advertising tool, production of radio commercials. Analysis of radio advertising campaigns.

COMU 4025: BROADCAST JOURNALISM, three (3) credits, three (3) cont. COMU 3005: FUNDAMENTS OF COMMUNICATION, three (3) credits, three (3) contact hours per week. Introduction to the basic concepts in the communication process. In depth study of the theories applied to both personal and mass communication. Research into the effects of mass media on individuals and society.

COMU 4027: AUDIO FOR THE MEDIA, three (3) credits, three (3) contact hours per week. This course presents the advanced concepts of modern audio technology and sound production for the media. The course involves the processes of pre-production, production and post-production and how these culminate in the finished production. Topics of the course include recording, talent management, trends and practices of the industry, and/or musical genres, audio processes for video, development of the critical ear, placing of microphones and the use and handling of the new sound technologies.

COMU 4035: RADIO AND TELEVISION PROGRAMMING, three (3) credits, three (3) contact hour per week. Pre-requisite: COMU 2041. The course is directed to enabling the student to learn and practice techniques for the design and organization of radio and television programs, whether this area individual or in chain. It also emphasizes the production of the daily log, its production and promotion, it also emphasizes the difference between a radio and a television production.

COMU 4055: PRINCIPLES OF JOURNALISM, WRITTEN NEWS FOR RADIO AND TELEVISION, three (3) credits, three (3) contact hours per week. This course offers students the opportunity to learn the modern techniques of writing news, articles of general interest, columns, editorials and everything related to information and journalism as a profession, and the social function it plays. Special interest will be given to the development of journalism in Puerto Rico.

COMU 4065: ADVERTISING AND AND PUBLIC RELATIONS CAMPAINGS, three (3) credits, three (3) contact hours per week. An advanced course in publicity and public relations in which real campaigns will be developed for the different communications media. Strategies based on communication and marketing techniques will be developed, emphasizing investigation, planning, implementation and evaluation.

COMU 4335: PRACTICUM/SEMINAR, three (3) credits, eight and one half (8.5) contact hours per week. This course includes fifteen (15) hours of seminar and 112.5 supervised

practicum. The work will be done in professional institutions such as radio and television stations, advertising agencies, and photography and cinema studios. Students will be assigned to positions for training under the supervision of the personnel at the institution and the professor.

PUCO

PUCO 1005: ADVERTISING PRINCIPLES, three (3) credits, three (3) contact hours per week. Pre-requisite: COMU 4007. The student is introduced to the world of publicity, acquainted to the historical development and the current impact of publicity on the marketing effort of the business, and further, on the consumers. The relation between publicity and the consumer is studied. The elements of the advertisement and their effect on the average consumer's buying behavior. The student is introduced to the different ways of diffusion of a publicity message and the necessary considerations the publicist needs to take into account to be able to develop an effective media strategy. The student is exposed to the concept of a publicity campaign and the analysis of the elements necessary for it to be successful. And last, the student is acquainted with the different institutions which contribute to the publicity process.

PUCO 2015: ADVERTISING COPYWRITING, three (3) credits, three (3) contact hours per week. Pre-requisites: PUCO 1005, COMU 2042 and COMU 2045. The aim of this course is to familiarize students with the basic configurations of the creative process, from the development of the concepts to its transference in a publicity message. Students will be exposed to the elementary rules of structuring a creative program that begin with the definition of objectives and ends with the presentation of a final text in its versions for television or movies, radio or the press. The course also considers the influence of behavioral sciences in the writing of a publicity text.

PUCO 2016: PUBLIC RELATIONS, three (3) credits, three (3) contact hours per week. Introduction to the basic principles of public relations in today's world. The steps to develop successful ions campaigns for profit or non-profit organizations will be studied. The theoretical foundation of public relations will be studied: planning and administration, ethics and research, and communication and public opinion.

PUCO 4007: PRINCIPLES OF PUBLICITY, three (3) credits, three (3) contact hours per week. The course introduces students to the world of publicity and familiarizes them with the historical development and current impact of publicity within marketing, and the consumer society. The relation between publicity and the consumer is analyzed and the various elements of an advertisement and its effect on the purchasing behavior of the average consumer. Students become familiar con the various methods of disseminating the message and with the necessary considerations taken into account by the publicist when developing

an effective media campaign. Students are exposed to the concept of a publicity campaign and the analysis of the elements required for a successful campaign. Finally, students become familiar with the various institutions that contribute to publicity.

PUCO 4086: ADVERTISING PHOTOGRAPHY, three (3) credits, three (3) contact hours per week. Theoretical and practical course on the basic elements of photography, the structure of the photographic camera, exposition, processing and printing on photographic paper. Emphasis will be given to publicity photographing.



EDUCATION



BACHELOR OF ARTS IN ELEMENTARY EDUCATION (0419)

MISSION

The Mission of the Department of Education of the University of Puerto Rico at Arecibo is to guarantee the development of an educational setting that encourages the construction of knowledge in the teacher candidate through significant learning experiences. This mission is congruent with the Mission of the University of Puerto Rico and the Mission of the University of Puerto Rico at Arecibo and responds to their three fundamental axes: learning, research and service. The faculty provides quality teaching that promotes the integral formation of the teacher candidates as citizens, professionals, reflective and critical researcher and transformer of their pedagogical practices in a variety of scenarios.

The Department aspires to promote respect for the plural ethical, moral and social values of a democratic society, as well as respect for and enrichment of our cultural patrimony as a legacy for future generations. **The Department is accredited by the National Council for Accreditation for Teacher Education (NCATE).**

VISION

At UPRA's Department of Education future educators are envisioned as reflective and critical researchers, who transform their educational practice, and who are able to create atmospheres that promote intellectual curiosity. Educators are perceived as individuals whose ethical, moral, aesthetic and social values are based on a humanist and constructivist foundation. Educators are seen as promoting the building of knowledge and showing respect for diversity.

OBJECTIVES

UPRA's Department of Education aims to meet the following goals to facilitate the well-rounded development of highly qualified teacher-candidates:

1. to prepare teacher-researcher candidates with the consciousness of having the primary responsibility for their own learning and who understand that learning is a continuous process.
2. to provide teacher-researcher candidates with the necessary knowledge and skills to search and handle information in pedagogical research in a variety of scenarios.
3. to train teacher-researcher candidates to perform as educators who know their field, and who are responsible and responsive to the educational needs of society.
4. to qualify teacher-researcher candidates who possess innovative assessment and evaluation techniques, that enable them to become agents of change in their

educational practice.

5. to prepare teacher-researcher candidates who are capable of designing significant educational experiences and of integrating technology into the learning and teaching experience.
6. to prepare teacher-researcher candidates with profound reflective ability, disposition, ethical and aesthetic values, and knowledge of self.
7. To prepare teacher-researcher candidates who are conscious and respectful of individual differences and different learning styles.
8. to develop teacher-researcher candidates with knowledge of general education with emphasis on oral and written communication skills in English and Spanish, quantitative and scientific reasoning skills, logical and critical thinking skills, collaborative work skills and historical and social knowledge.

COMPETENCIES OF THE TEACHER-CANDIDATE:

UPRA-DE teacher candidates exhibit the following competencies:

1. Knowledge and integration of the pedagogical and theoretical content in the development of critical thinking skills (K)
2. Ability to use and integrate technology and other educational resources (K, S)
3. Ability to be an active researcher in the development of critical thinking, problem solving, and performance skills (S)
4. Sensitivity to ethical and aesthetic aspects of human diversity (D)
5. Commitment to their professional development (D, S)
6. Skill in the use of their own language and other languages (S)
7. Creative leader of the learning environment (S, D)
8. Ability to integrate different non-traditional learning styles in the development of their courses (K,S,D)
9. Ability to foster relationships with school colleagues, parents and families, and agencies in the community (K,S,D)
10. Ability to design and implement assessment and evaluation techniques (K,S,D)

FIRST YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
ESPA 3101	Basic Spanish I	3
INGL 3101 ³²	Basic English I	3
INGL 3113	Oral Practice I	0
HUMA 3101	Western Culture I	3
CISO 3121	Introduction to Social Science I	3
MATE 3041	Introductory Mathematics I	3
EDFU 3001	Human Growth and Development I	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
INGL 3102*	Basic English II	3
INGL 3114*	Oral Practice II	0
ESPA 3102	Basic Spanish II	3
HUMA 3102	Western Culture II	3
CISO 3122	Introduction to Social Science II	3
MATE 3042	Introductory Mathematics II	3
EDFU 3002	Human Growth and Development II	3
Total		18

SECOND YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
CIFI 3001	Intro. to the Physical Sciences I	3
EDFU 3007	Social Foundations of Education	3
TEED 3025	Audiovisual Education Workshop	3
MATE 4105	Geometry for Teachers	3
EDPE 3005	Children and Their Language	3
EDES 4006	Characteristics and Needs of Exceptional Students	3
Total		18

³² Students who score above 580 on the English language part of the College Board Examination will take INGL 3103-Intermediate English I and INGL 3104-Intermediate English II. This sequence does not require the oral practice laboratory.

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
EDFU 4019	Philosophical Principles of Education	3
EDFU 3017	Evaluation of Learning	3
EDPE 3001	Teaching the Mother Tongue in Elementary School	3
EDPE 3006	Teaching Social Studies in the Elementary School	3
BIOL 4055	Environmental Science	3
CIFI 3002	Introduction to Physical Sciences II	3
	Total	18

THIRD YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
EDPE 3002	Methodology of Teaching the Mother Tongue in the Elementary School.	3
EDPE 4085	Seminar on Evaluation of Pedagogical Strategies and Innovations	1
CIIN 1001	Integrated Science I	3
CIIN 1002	Laboratory for Integrated Science I	1
EDPE 3095	Teaching Art in the Elementary School	3
MATE 3015	Introduction to Statistics	3
	Elective	3
	Total	17

SECOND SEMESTER

Code	Description	Credits
EDES 3006	Diagnostic and Correction of Deficiencies in Reading and Writing	3
INGL 3021	Oral and Written English I	3
EDPE 4115	Teaching Science and Mathematics in the Elementary School	3
CIIN 1003	Integrated Sciences II	3
CIIN 1004	Laboratory for Integrated Science II	1
EDPE 4210	Teaching Physical Education in the	3

	Elementary School	
EDPE 4051	Seminar on Pedagogical Research I	1
	Total	17

FOURTH YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 4267	Puerto Rican Literature Compendium	3
EDPE 4052	Seminar on Pedagogical Research II	1
EDPE 3097	Teaching Music in the Elementary School	3
EDPE 4335	Seminar: Curriculum and Teaching in the Elementary School	3
HIST 3241	Historia de Puerto Rico I Elective	3 3
	Total	16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
EDPE 4340	Student Teaching at an Elementary School (4 to 6) OR	
EDPE 4025	Student Teaching K-3	6
HIST 3242	Historia de Puerto Rico II Elective	3 3
	Elective	3
	Total	15

Total credits 137

NOTES:

1. The Public Education Department requires a course on U.S. History, and another on the use of the computer in Education to certify the applicant. It is highly recommended that students of the program take at least one of these courses.
2. Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

ELECTIVES

HIST 3115	Compendium on U.S. History	3
HIST 3111	U.S. History I	3
HIST 3112	U.S. History II	3

**BACHELOR OF ARTS IN ELEMENTARY EDUCATION
WITH MAJOR IN PHYSICAL EDUCATION
FOR THE ELEMENTARY LEVEL³³
(0448)**

The mission of the Bachelor of Arts in Elementary Education, with Specialization in Physical Education for the Elementary Level is to provide highly qualified teaching personnel for the Puerto Rico Public and private school systems at the elementary K-3 and 4-6 levels.

The teaching-learning process emphasizes the holistic development of the student who aspires to become an educator. It puts special emphasis on the development in the future teacher of the desirable habits, attitudes, skills, and abilities that promote the highest sense of responsibility, honesty and personal and professional values, regard for the activities of corporal movements and the scientific knowledge inherent to the teaching and practice of Physical Education at the elementary level.

GENERAL OBJECTIVES:

1. To enable teacher candidates to work at the elementary school level.
2. To provide candidates for teacher at the elementary school with the methods, non-traditional strategies and pedagogical procedures that will allow them to effectively carry out the teaching and learning process.
3. To develop in teacher candidates the competencies and skills of their specialization.
4. To provide through the various courses a broad program of activities varied and diverse that will enhance in teacher candidates the skills for participating in sports and for learning methods appropriate for teaching physical education.
5. To provide teacher candidates with leadership experiences in the school and the community.
6. To encourage the development of high self-esteem that will allow candidates to critically reflect on themselves as individuals and as professionals.

³³ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
EDFI 3555	History and Elements of Physical Education	3
EDFU 3001	Human Growth and Development I	3
ESPA 3101	Basic Spanish I	3
INGL 3101 ³⁴	Basic English I	3
INGL 3113	Oral Practice I	0
MATE 3041	Introductory Mathematics I	3
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CISO ³⁵	General Education in the Social Sciences	3
EDFU 3002	Human Growth and Development II	3
ESPA 3102	Basic Spanish II	3
INGL 3102*	Basic English II	3
INGL 3114*	Oral Practice II	0
EDFI 4156	Teaching Motor Perception	2
MATE 3042	Introductory Mathematics II	3
Total		17

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CIBI 3001	Intro. to the Biological Sciences I	3
EDFI 3090	Physical Education for the Pre-School Level	3
EDFI 3645	First Aid and Safety	2
EDFU 3007	Social Foundations of Education	3
EDPE 3129	Using the Computer in Classroom	3

³⁴ Students who score above 580 on the English language part of the College Board Examination will take INGL 3103-Intermediate English I and INGL 3104-Intermediate English II. This sequence does not require the oral practice laboratory.

³⁵ General Education courses will be selected as identified from section General Education Program Departments.

INGL 3093	Conversational English	3
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CIBI 3002	Introduction to the Biological Sciences II	3
	Elective	2
EDFI 4167	Gymnastics, Dance and Physical Efficiency	3
ESPA 3208	Writing and Style	3
EDFI 3096	Teaching Physical Education to K-3	2
TEED 3025	Workshop in Audiovisual Education	3
Total		16

THIRD YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
EDES 4006	Seminar on the Nature and Needs of the Exceptional Child	3
CIFI 3001	Introduction to Physics I	3
EDFI 4159	Anatomy and Kinesiology with Lab.	3
EDFI 3465	Personal and Community Health	3
EDFU 4019	Philosophical Foundations of Education	3
	Elective	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ARTE 3115	Art Appreciation	2
EDFI 3097	Teaching Physical Education in 4-6	2
MUSI 3235	Music Appreciation	2
EDFI 4155	Teaching Physical Education to Children with Disabilities at the Elementary Level	3
EDFU 3205	Evaluation and Investigation of Physical Education at the Elementary Level	3
	General Education in Humanities**	3

Elective	3
Total	18

FOURTH YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
EDFI 4158	Elementary School Swimming	2
EDFI 4165	Organization, Management and Supervision of Physical Education	3
EDPE 4485	Seminar on the Integration of Teaching Physical Education	3
HIST 3177	History de Puerto Rico	3
CISO		3
Elective		3
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
EDPE 4487	Student Teaching Physical Education	6
HIST 3179	History of the United States II	3
Elective		3
Total		12

Total credits 128

ELECTIVES

Students will choose two (2) from the following list.

CODE	DESCRIPTION	CREDITS
ANTR 3005	Cultural Anthropology	3
CISO 3121	Introduction Social Sciences I	3
CISO 3122	Introduction Social Sciences II	3
CISO 3155	Fundamentals of Statistical Reasoning	3
GEOG 3155	Elements of Geography	3
GERO 3005	Fundamentals of Gerontology	3
EDFI 4159	Anatomy and Kinesiology	3
PSIC 3005	General Psychology	3
CISO 3245	Fundamentals of Sociology	3

Students will choose one (1) from the following list:

FILO 3001	Introduction to Philosophy	3
HUMA 3101	Western Civilization I	3
LITE 3011	Modern Literature	3
TEAT 3011	Stage Acting	3
TEAT 3025	Appreciation of the Dramatic Arts	3

The following courses are also offered for the enrichment of this program:

CODE	DESCRIPTION	CREDITS
EDES 3006	Diagnostic and Correction of Deficiencies in Reading and Writing	3
EDFI 3009	Folk Dancing	2
EDFI 3451	Tennis	2
EDFI 3665	Elementary School Games	2

FACULTY

Andino Noguerras, Juan, M.A., *Assistant Professor*, Master of Arts in Physical Education, Scientific Analysis of Human Movement, Universidad Interamericana de Puerto Rico.

Colón Rodríguez, José C., M. A., Instructor, Master of Arts in Physical Education, Universidad Metropolitana.

Gómez Marrero, Ana, M.A. Ed., *Professor*, Master of Arts in Education, Secondary Education, Universidad Interamericana de Puerto Rico.

Gutiérrez Muñoz, Carmen, Ed.D., *Professor*, Doctor of Education, Curriculum and Teaching, Universidad Interamericana de Puerto Rico.

Jiménez Estremera, José, M.A. E.d., *Assistant Professor*, Master of Arts in Education, Physical Education, Universidad Interamericana de Puerto Rico, Doctoral Candidate in Education Physical Education, Curriculum and Teaching, Pontificia Universidad Católica de Puerto Rico.

Laboy González, Brenda, Ed.D., *Assistant Professor*, Doctorate in Counseling and Orientation, UPR-Río Piedras.

Laracuenta Carreras, Luis, M.A. Ed., *Professor*, Master of Arts in Education, Physical Education, Universidad de Puerto Rico.

Martínez González, Ivette, Ed.D., *Professor*, Doctor of Education, Curriculum and Teaching, Universidad Interamericana de Puerto Rico.

Román Rodríguez, Ileana, Ed.D. Ed., *Assistant Professor*, Doctor of Administration Special Education, Universidad Interamericana de Puerto Rico, Recinto Metropolitano.

Torres Ramos, Zenobia, M.A. Ed., *Assistant Professor*, Master of Arts Education, Administration and Supervision, Universidad Interamericana de Puerto Rico; Doctoral Candidate in Education, Curriculum and Teaching, Universidad Interamericana de Puerto Rico, Recinto Metropolitano.

Velázquez Valcárcel, Manuela, M.A. Ed., M.A., *Associate Professor*, Master of Arts in Education, Administration and Supervision, Phoenix University; Master of Arts, History, Centro de Estudios Avanzados de Puerto Rico y el Caribe; Doctoral Candidate in Philosophy, Centro de Estudios Avanzados de Puerto Rico y el Caribe.

LIST OF COURSES

EDES

EDES 3006: DIAGNOSTIC AND TREATMENT OF READING AND WRITING DEFICIENCIES, three (3) credits, three (3) contact hours per week. Pre-requisite: EDPE 4006. Development of competencies necessary to teach, diagnose and correct reading and writing deficiencies including the cognitive, affective and psychomotor basis that characterize these learning processes. The study and analysis of children with reading and writing skills. Analysis of the reading and writing inventory models, diagnostic tests and other instruments used as guides for creating and using materials used in working with children with problems.

EDES 3007: PHYSICAL EDUCATION FOR HANDICAPPED CHILDREN, three (3) credits, three (3) contact hours per week. Pre-requisite: EDPE 4006. The purpose of this course is to familiarize students with different physical education activities for children with special needs. During the course students will become acquainted with the following: 1. Public Law 94-142 and its effects on physical education, 2. the physical development of handicapped children, 3. the development of a physical education curriculum that provides personal experiences and activities, 4. the special attention given to specific problems, and 5. the selection and adaptation of physical education equipment and materials.

EDES 3009: CARE OF THE CHILD IN THE CLASSROOM, three (3) credits, three (3) contact hours per week. Pre-requisite: EDPE 4006. This course is offered to professors and regular students of the regional colleges. A discussion and analysis of the different methods used in dealing with children's behavior in the classroom. It emphasizes the teacher's role in dealing with students behavior so it conforms to the norms established for the classroom.

EDES 4006: SEMINAR ON THE CHARACTERISTICS AND NEEDS OF HANDICAPPED CHILDREN, three (3) credits, three (3) contact hours per week. This course is offered to second year students in education and to regular and special education teachers. An introductory course which familiarizes students with the handicapped population, their rights and the services offered to them. During the course students will become acquainted with: 1. the classification and diagnostic systems used in special education, 2. the different special education programs offered in Puerto Rico, 3. the organization and administration of special education programs in Puerto Rico, 4. resources (other than schools) that provide services to the handicapped children of Puerto Rico, 5. factors that influence the organization and provisions for special education services: Public Law 94-21, Law 2, and 6. the problems confronted by handicapped children in the school and in the community.

EDES 4049: CHARACTERISTIC AND NEEDS OF THE CHILD WITH SPECIFIC LEARNING DISABILITIES, three (3) credits, three (3) contact hours per week. Introductory course that discusses the theories on the origin of the specific disability, the characteristics present in children, the identification and referral to special education services.

EDES 4050: METHODS, TECHNIQUES AND MATERIALS USED IN THE EDUCATION OF THE EMOTIONALLY-DISTURBED, three (3) credits, three (3) contact hours per week. The study of the learning problems of the emotionally disturbed child and the analysis of the modern education approach (programs, techniques, materials, diagnosis, corrections) that is used in educating this child. Also studied is the role of the teacher and other professional personnel in identifying, diagnosing and educating emotionally-disturbed children and those with deviate conduct.

EDFI

EDFI 3007: DANCE IN ELEMENTARY SCHOOL, two (2) credits, three (3) contact hours per week. Methodology and study of the dynamism of the human body through rhythmic activities, creations, exercises and dances; methodology for the teaching of the various modalities. (It includes skills for K-3 and 4-6).

EDFI 3008: ARCHERY: two (2) credits, three (3) contact hours per week. Study of the origins and development of the sport, its rules, terminology and specifications. It includes the teaching of fundamental skills and their formal application for competition.

EDFI 3009: FOLK DANCING, two (2) credits, three (3) contact hours per week. The history of dance, customs of other countries, factors which influence the dance patterns, improving folk dance techniques; the practice of basic skills, simple choreography, basic movements and dance steps, positions and formations.

EDFI 3025: ELEMENTARY VOLLEYBALL, two (2) credits, three (3) contact hours per week. This course provides students with the basic knowledge of the history, rules, technique and strategy of volleyball.

EDFI 3035: ELEMENTARY BASKETBALL, two (2) credits, three (3) contact hours per week. The teaching and development of the basic skills and techniques of basketball. A study of the history and the mental, physical and social advantages of practicing the sport.

EDFI 3045: SOFTBALL, two (2) credits, three (3) contact hours per week. This course includes the teaching of technique for playing softball. It includes history, rules, scoring and strategy.

EDFI 3075: TRACK AND FIELD AND CROSS-COUNTRY, two (2) credits, three (3) contact hours per week. The theoretical part of this course will cover the history, rules, terminology, scoring systems and the principles of the sports. The skills-training period will teach the correct techniques used in the twenty-one events.

EDFI 3076: PHYSICAL CONDITIONING, one (1) credit, two (2) contact hours of lecture and practice per week. This course emphasizes components for good physical aptitude.

EDFI 3090: PHYSICAL EDUCATION FOR PRE-SCHOOL LEVEL, three (3) credits, three contact hours per week. Fundamental aspects of psycho-motor, cognitive and affective development in children up to five years of age and their relation to and application in Physical Education with emphasis on the selection, organization and evaluation of movement activities at this level.

EDFI 3095: COACHING AND OFFICIATING BASKETBALL, two (2) credits, three (3) contact hours per week. One hour of lecture and two hours of practice. Lecture and practice in coaching and officiating basketball.

EDFI 3096: TEACHING OF PHYSICAL EDUCATION IN GRADES K-3, two (2) credits, three (3) contact hours per week. The course deals with curriculum, organization and planning of a Physical Education program for grades K-3. It includes the selection and practice of movement activities that contribute to the perceptual, motor, social, emotional and intellectual development of children in grades K-3.

EDFI 3097: TEACHING OF PHYSICAL EDUCATION IN GRADES 4-6, two (2) credits, three (3) contact hours per week. The course deals with curriculum, organization and planning of a Physical Education program for grades 4-6. It includes selection and practice of appropriate activities for the development of children. Also includes methods and techniques for teaching physical education in grades 4-6.

EDFI 3098: TECHNIQUES AND SKILLS IN TEACHING PHYSICAL EDUCATION TO DISABLED CHILDREN, three (3) credit hours, three (3) hours of lecture per week. Motor techniques and skills for teaching physical education to disabled children. Emphasis is placed on the teaching of basic motor skills to disabled children. The basic skills used in the teaching of physical activities and motor skills are identified. The course includes the following topics: (1) Systematic improvement in the teaching of skills (2) Task analysis of motor skills (3) Evaluation of motor skills (4) Introduction to the development of an individualized physical education program.

EDFI 3100: MOTOR LEARNING, three (3) credit hours, three (3) hours of lecture per week. History and development of motor learning within and without the area of physical

education. Definition and explanation of the factors involved in the learning of motor skills during human development.

EDFI 3106: SIMPLE GAMES AND ORGANIZED SPORTS MODIFIED FOR THE ELEMENTARY SCHOOLS, three (3) credits, three (3) contact hours per week. Teaching and practice of simple games, modified activities and games as an introduction to sports at the elementary school level.

EDFI 3325: CURRICULUM IN PHYSICAL EDUCATION, three (3) credit hours, three (3) hours of lecture per week. Philosophy, principles and main tendencies in the structuring of courses of study for various levels of teaching.

EDFI 3385: PHYSICAL FITNESS, two (2) credits, three (3) contact hours per week. Body conditioning exercises. Development of agility, flexibility, balance, coordination and strength, how to condition the athlete's body. Physical fitness test will be administered at the start and the end of the semester.

EDFI 3415: PERSONAL DEFENSE, two (2) credits, three (3) contact hours per week. The practice of simple methods used in personal defense. Familiarizes students with simple materials and preventive methods recommended in cases of emergency.

EDFI 3425: WEIGHT-LIFTING, two (2) credits, three (3) contact hours per week. One hour of lectures and discussion and two hours of teaching the skills per week. During the theoretical part of the course, the history, rules, terminology and principles of the sport will be studied. Olympic weight-lifting and free-style weight-lifting will be taught during the skills teaching portion. Special emphasis will be given to the sport as a means of conditioning the body for other sports.

EDFI 3441: INTRODUCTION TO SWIMMING, two (2) credits, three (3) contact hours per week. This course aims to develop the basic movements in swimming and the methodology used in teaching skills, the styles used in competition and during life-saving are discussed and practiced.

EDFI 3451: TENNIS, two (2) credits, three (3) contact hours per week. A study of the history, rules, facilities and game equipment. A practice of the basic skills such as forehand, backhand and serve.

EDFI 3452: INTERMEDIATE TENNIS, two (2) credits, three (3) contact hours per week.
Pre-requisite: EDFI 3451. Teaches the intermediate skills of the game; offensive and defensive techniques and strategies; single and double games will be played.

EDFI 3465: PERSONAL AND COMMUNITY HEALTH, three (3) credits, three (3) contact hours per week. A study of the healthy lifestyle from an individual and community perspective with special emphasis on interpersonal relations. It includes exercises rest, nutrition, personal habits, hygiene, transmissible diseases, heredity, etc.

EDFI 3555: HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION, three (3) credits, three (3) contact hours per week. Historical study of physical education from its origins to the present. Study and interpretation of the basic principles of physical education programs.

EDFI 3565: INTERMEDIATE FOLK DANCE, two (2) credits, three (3) contact hours per week. Pre-requisite: EDFI 3009. Theory and practice of more complicated dances. A unit on rhythmic movements and one on Latin American dances will be taught.

EDFI 3585: BASIC RHYTHMS, two (2) credits, three (3) contact hours per week. The teaching of exercises as a progressive way of conditioning the body and increasing individual flexibility, strength and stamina; offered to students of both sexes. A unit on theory will be included for better comprehension of the various rhythms and music forms.

EDFI 3645: FIRST-AID, two (2) credits, three (3) contact hours per week. How to care for wounds and simple injuries. Causes and prevention of accidents, along with adequate procedures for preventing and treating injuries.

EDFI 3655: ELEMENTARY SCHOOL GAMES, two (2) credits, three (3) contact per week. Teaches the basic body movements: walking, jumping, etc. Simple activities which include preparatory games, track and field, gymnastics, with conditioning exercises. Other special activities such as field days or activities for students with handicaps or limitations.

EDFI 3665: RECREATIONAL GAMES, two (2) credits, three (3) contact hours per week. A study of the history, equipment specifications, facilities and rules to follow in the different sports. The basic skills and strategies of selected games will be practiced.

EDFU

EDFU 3001: HUMAN GROWTH AND DEVELOPMENT I, three (3) credits, three (3) contact hours per week. This course helps future teachers understand the nature and scope of psychology as a basic for understanding the educational process. It introduces students to the concepts of growth and development of children and adolescents. It examines the biological and environmental forces that contribute to the development of a healthy personality.

EDFU 3002: HUMAN GROWTH AND DEVELOPMENT II, three (3) credits, three (3) contact hours per week. **Pre-requisite:** EDFU 3001. In this course students come in contact with the principles of psychology which explain the learning-teaching process and the conditions in each individual that affect this process. Part of the semester is dedicated to the study of the evaluation process; special attention is given to the principles that govern the creation of educational tests and student promotions.

EDFU 3005: PERSONAL DEVELOPMENT GUIDANCE SEMINAR, zero (0) credits, one (1) contact hour per week. This course is offered to all new students. Its purpose is to help students learn about themselves, their abilities and limitations. They will also receive help defining their vocational interests, to develop study plans and to solve problems.

EDFU 3007: SOCIAL FOUNDATIONS OF EDUCATION, three (3) credits, three (3) contact hours per week. Analysis of the social sciences and their relation to the education process. The analysis of the school as a social institution. This course includes the study of the cultural heritage of humanity and the role of education in preserving and improving it. Also studied: 1. the integration of education to community life and institutions., 2. group behavior in relation to school problems., 3. the social role of teachers, and 4. the relationship between social change and the school.

EDFU 3008: EDUCATIONAL IMPLICATIONS OF THE SOCIAL AND ECONOMIC PROBLEMS OF PUERTO RICO, three (3) credits, three (3) contact hours per week. Analysis of the principal social and economic problems of Puerto Rico and their implications on education. The possible solutions offered by the school.

EDFU 3017: EVALUATION LEARNING PROCESS, three (3) credits, three (3) contact hours per week. **Pre-requisite:** EDFU 3002. Diagnose and improve instruction in the classroom by means of tests and other units of measure. Statistical techniques used in a study of I.G. and other tests prepared for classroom use.

EDFU 3110: CONCEPTS AND PRINCIPLES OF HEALTH, three (3) credits, three (3) contact hours per week. This course will present an integral and conceptual framework of the basic principles of public health and health education. The natural history of sickness, and the different levels of prevention: primary, secondary and tertiary, will be studied. Primary prevention, which is promotion and education will be emphasized. The general promotion of health aims to maintain an optimal level of health through education, practices and values that foster health. Basic concepts of epidemiology will be discussed.

EDFU 3115: PHILOSOPHY OF HEALTH EDUCATION, three (3) credits, three (3) contact hour per week. Study and analysis of the philosophy, principles and objectives and the reach of health education. Considers the interrelationship between the social, philosophical,

cultural, economic and psychological aspects in preserving the personal, family and communal health. Includes the socialization process and its relation to health education, health indicators, the basic principles of statistics, demography, psychology and the interpretation of the principal models used to achieve changes in health behavior. Several programs on health behavior will be studied. Several government and private health education programs will also be studied.

EDFU 3205: EVALUATION AND INVESTIGATION OF PHYSICAL EDUCATION AT THE ELEMENTARY LEVEL, three (3) credits, three (3) contact hours per week. General and fundamental consideration of tests, introduction to procedures and analysis, uses and limitations of tests and evaluation, introduction to statistics, types of tests and instruments to measure physical education at the elementary level, assessment in physical education, etc.

EDFU 4019: PHILOSOPHICAL PRINCIPLES OF EDUCATION, three (3) credits, three (3) contact hours per week. A study of the relationship between philosophy and the practice of the teaching profession. An introduction to the basic problems in philosophy and their educational implications.

EDFU 4106: HUMAN SEXUALITY, three (3) credits, three (3) contact hours per week. This course is designed for the student to be able to visualize human sexuality as an aspect of vital importance in the integral development of the individual. Through the course the student is exposed to the physiological, psychological, sociological and spiritual aspects of human sexuality; and also to its educational inferences of the development of sexuality from childhood to old age. Typical problems of erotic behavior, sexually transmitted diseases, and sexual depressions are discussed. Learning experiences provide the student with the opportunity of clearing up doubts and myths about sexuality, and fosters the development of positive attitudes conducive to a healthy sexuality. Emphasis will be given to discussing high-risk sexual behavior.

EDFU 4107: HEALTH AND SAFETY, three (3) credits, three (3) lecture hours per week. Through the course the student will have the opportunity to know and understand information about safety, accidents, disasters that justify the importance of prevention in the different scenarios of daily living; the student will also learn the conditions that pose different risks to human safety. Factors which put persons at risk, behavior patterns posing high-risk factors which require modification, and the methods or strategies to motivate the correct application of safety measures for the protection of health and life, including driving security measures and first aid.

EDFU 4109: DYNAMICS OF PERSONALITY AND BEHAVIORAL PROBLEMS, three (3) credits, three (3) contact hours per week. The course will present several theoretical approaches aimed at visualizing the development and dynamics of human personality.

Specific problems of the human personality and high risk behaviors such as the use and abuse of drugs, tobacco and alcohol will be examined. How the teacher can contribute to prevent these and how can he/she can foster healthy behavioral patterns will be emphasized. The problems and social implications of other behavioral patterns such as sexual deviations and school vandalism will also be examined. The skills needed by the teacher to deal with these conducts effectively will also be emphasized.

EDFU 4110: EDUCATION IN ENVIRONMENTAL HEALTH AND ECOLOGY, three (3) credits, three (3) lecture hours per week. Concepts of environmental health and ecology will be defined and analyzed. The relationship between environmental education and the optimal state of health that every human should have will be established. Framed in a holistic concept of health, the course is directed to achieve favorable changes in the students regarding the environmental. Consequently, they will evaluate the relationship of man with his surrounding environment. With this purpose in mind the course hopes to develop in the students the attitudes and skills necessary to the solution of environmental problems. The course provides for the use of diverse educational strategies, to accomplish the integration of theory and practice.

EDPE

EDPE 1005: PHYSICAL EDUCATION IN ELEMENTARY SCHOOL, two (2) credits, three (3) contact hours per week. A study of the history and development of physical education and the physical education program for elementary grades. Relevant lab experiences complement the course. It consists of two hours of lecture and one hour of practice per week.

EDPE 2005: TEACHING OF ART IN ELEMENTARY SCHOOL, two (2) credits, three (3) contact hours per week. Instructional methods and materials that may be used in the elementary grade classroom to develop the capacity for artistic expression in the plastic arts. The development of the teacher's sensitivity and ability to transmit to pupils. The course will consist of lectures, discussions and a workshop, which will be conducted in a specially reserved art room. The course includes one hour of lecture and two hours of practice per week.

EDPE 2006: TEACHING OF MUSIC IN ELEMENTARY SCHOOL, two (2) credits, three (3) lecture hours per week. Songs and dramatization of chanted games, the playing of the recorder to obtain rhythmic and melodic expression, the teacher will make use of the student's auditory experiences. The study of the correct methodology to guide students in their artistic creations. Through their own experiences, students will observe the individual nature of artistic communication and feelings, emotions and ideas involved in this process.

EDPE 2007: TEACHING PRACTICUM IN ELEMENTARY SCHOOL, six (6) credits and fifteen (15) lecture hours per week. Pre-requisite: EDPE 2008. The beginning teacher works three hours daily, five day a week, for one semester in one of Puerto Rico's public schools. The student-teacher will be under the guidance and supervision of a regular teacher and teaching-practice supervisor. The practice is complemented by lectures, demonstrations, direct observations, and participation in other activities appropriate for teachers.

EDPE 2008: SEMINAR ON CURRICULUM AND TEACHING IN THE ELEMENTARY SCHOOL, three (3) credits, three (3) lecture hours per week. Pre-requisite: EDFU 1006. Analysis and discussion of the elementary school curriculum and to implement it. Special attention is given to behavioral objectives, classification of question, individualized instruction, student grouping and planning of learning activities.

EDPE 3001: TEACHING THE MOTHER LANGUAGE IN THE ELEMENTARY SCHOOL I, three (3) credits, three (3) lecture hours per week. This course aims to make students aware of their responsibility in perfecting their mother tongue as a means of communication and expression, identify the importance of language as a teaching vehicle in the elementary school. The content of the course is organized in the following six basic units that contain a logical sequence of activities: 1. the nature of language, 2. nature and development of the child, 3. general considerations to be examined in language arts, 4. the art of listening and speaking, 5. resources for the teaching of language and methodological recommendations, and 6. the appropriate techniques used in perfecting auditory and oral forms of language.

EDPE 3002: METHODOLOGY OF TEACHING THE MOTHER LANGUAGE ARTS IN THE ELEMENTARY SCHOOL II, three (3) credits, three (3) contact hours per week. Pre-requisite: EDPE 3001. Continuation of EDPE 3001.

EDPE 3005: CHILDREN AND THEIR LANGUAGE, three (3) credits, three (3) lecture hours per week. This course provides for the study of language development in the child within the philosophical, social and psycho-pedagogical perspectives. Emphasis is placed on acquiring basic concepts of language, complemented by clinical experiences. This course is designed for students majoring in preschool and primary education.

EDPE 3006: SOCIAL STUDIES IN THE ELEMENTARY SCHOOL, three (3) credits, three (3) lecture hours per week. The study, analysis and discussion of the new curriculum, methodology, approaches, goals and scope of the new social studies program in the elementary school. The course aims to train the future teacher in the new philosophy of the program that answers to the reality and needs of Puerto Rican society seen within the context of other countries and the basic concepts of the social science, cultural interaction, social groups, interdependency, democracy, conservation, production, distribution and consumption of resources.

EDPE 3008: EVALUATION PROCESS IN ELEMENTARY SCHOOL, three (3) credits, three (3) lecture hours per week. Evaluating the results of the education process. It also emphasizes the relation between academic evaluation and effective teaching.

EDPE 3017: LANGUAGE ARTS, three (3) credits, three (3) lecture hours per week. Pre-requisite: ESPA 3102. This course studies the vernacular language as a learning tool in the curriculum of the elementary school. The study of the nature of the linguistic process, the importance of the function of the vernacular language as a communication tool, and human development and the development of language skills are studied.

EDPE 3018: TEACHING OF ENGLISH AS A SECOND LANGUAGE, three (3) credits, three (3) lecture hours per week. Pre-requisite: INGL 3102. Characteristics and use of the language. Morphology, phonology, syntax and vocabulary of English as a second language. The principles of teaching ESL in Puerto Rico; methodology and texts used. Preparation of lesson plans and activities for use in classroom.

EDPE 3095: TEACHING ART IN THE ELEMENTARY SCHOOL, three (3) credits, three (3) lecture hours per week. This course emphasizes the methods and materials that can be used in the classroom to develop in children the capacity of artistic expression in the field of the plastic arts in the first seven grades (K-6) of our school system. Special care will be taken in communicating the true meaning of art in general, so that the future teachers taking the course develop and enhance their own sensibility to art, and be capable to do the same with the children they will teach. To achieve its objectives the course will be divided into lecture, discussion and workshop time.

EDPE 3097: TEACHING MUSIC IN THE ELEMENTARY SCHOOL, three (3) credits, one (1) lecture hour and two (2) practice hours per week. Songs and musical games will be learned in a musically appropriate environment in the classroom. Some will be dramatized, and students will learn to play the recorder to obtain melodic and rhythmic expression; aural experiences they will observe the individual nature of the ideas involved in this process.

EDPE 3105: TEACHING THE USE OF THE METRIC SYSTEM, three (3) credits, three (3) lecture hours per week. A three credit course which includes the measures of the metric system and their use in the different educational, scientific and everyday living spheres. The course has an interdisciplinary focus and a workshop with ample use of resources.

EDPE 3116: TEACHING SCIENCE IN THE ELEMENTARY SCHOOL, three (3) credits, three (3) lecture hours per week. The course identifies and analyzes the basic concepts of science that an elementary school teacher should have for an effective teaching. It will analyze guide, texts and programs of the Department of Public Education; it will also

emphasize the planning of learning activities, the writing of performance objectives and teaching means.

EDPE 3129: USING THE COMPUTER IN THE CLASSROOM, three (3) credits, three (3) lecture hours per week. Introductory course dealing with the place of the microcomputer in the classroom. Special importance will be accorded to the uses of the computer in the school environment, available resources for the teacher, as well as the ways to integrate the computer in the teaching process. Class discussions will be complemented with experiences in the workshop and special assignments.

EDPE 3305: THE PRE-SCHOOL PROGRAM I, three (3) credits, three (3) lecture hours per week. The history, philosophy and theories that guide the educational perspectives at the pre-school level, considering several models of pre-school programs (Head Start and Montessori, among other). The characteristics of the pre-school child pertaining to his growth, development and education are studied. Observation of the Pre-School Laboratory at the UPR Bayamón Campus is required.

EDPE 3306: THE PRE-SCHOOL PROGRAM II, three (3) credits, three (3) lecture hours per week. The organization, study and analysis of the pre-school curriculum, covering such topics as the Language Arts, Mathematics, Sciences, Health, Creative Expression: Art, Music and Movement, the social studies, and the development of values for the cognitive, psychomotor and affective development of the pre-school child, besides developing and reinforcing its interaction.

EDPE 3308: EDUCATION OF PRE-SCHOOL AGE CHILDREN, three (3) credits, three (3) lecture hours per week. Study and analysis of the work of the pre-school teacher, his/her personal and professional characteristics, how these influence performance and the teaching/learning process of the child. A reference framework of educational methods, techniques and strategies, means of evaluation and their professional application to the different pre-school curricular areas is provided. Experiences in the teaching laboratory of educational sciences are required.

EDPE 3315: THE DEVELOPMENT OF READING/WRITING DURING THE PRE-SCHOOL YEARS, three (3) credits, three (3) lecture hours per week. Study of the nature of the linguistic process, of language as a tool for communication, and of reading and writing as developmental processes during the pre-school years. It guides the student to the analysis of the stages and principles of development and evolution of reading/writing at the pre-school level, and its implications in the educational process.

EDPE 3317: CHILDREN'S LITERATURE, three (3) credits, three (3) lecture hours per week. **Pre-requisite:** ESPA 3101, ESPA 3102, EDPE 3005, EDPE 9003. Study and analysis of children's literature, its characteristics, kinds that compose the methodology and appropriated techniques, in order for the child to acquire linguistic skills that help them express their thoughts and emotions with property and correction. Presents and discuss the models and strategies related to literature experiences for preschool and elementary school children. The application of those models and strategies serve to encourage the pleasure, enjoyment and value of literature by young children.

EDPE 3326: RHYTHM AND MOVEMENT FOR DEVELOPMENT OF MOTOR PERCEPTION AT THE PRE-SCHOOL LEVEL, three (3) credits, three (3) lecture hours per week. The course will provide information related to the need, value, curricular concepts and contents necessary for teaching physical education at the pre-school level. Foundations, principles and sequences of the motor perception and physical development of pre-school children. The course includes the application of these concepts in a demonstration class.

EDPE 3355: PEDAGOGICAL INNOVATIONS, three (3) credits, three (3) lecture hours per week. Analysis and discussion of the latest trends or teaching techniques prevalent in the different areas taught at the elementary level. Special attention will be given to the introduction of establishment of innovative programs such as non-graded school, the use of instructional modules or programmed instruction, to the staggered schedule, and the use of the resources of educational technology to enrich the learning process. Visits to schools to observe the functioning of these new trends and technologies are part of the course.

EDPE 4025: TEACHING PRACTICE K-3, six (6) hours, fifteen (15) contact hours per week. **Pre-requisite:** EDPE 4335. This course offers the student varied experiences in the laboratory in which he/she observes, reflects, acts, reacts to and self-evaluates his/her reactions on the basis of the results obtained. Laboratories are held for three (3) hours daily, four (4) days a week, plus three (3) seminar hours one (1) day a week. Students will realize the work proper to practice in a minimum of thirteen (13) weeks during the course of the school semester, in a public school supervised by the Department of Education in coordination with the Department of Public Education.

EDPE 4051: PEDAGOGICAL RESEARCH SEMINAR I, one (1) credit, three (3) lecture hours per week. **Pre-requisite:** EDPE 4085. Consists of one hour (1) of lecture and two (2) hours of practice per week. After analyzing the teaching-learning process, students will develop their skills in preparing proposals and plans for educational research. As a result, they will prepare a proposal for research strategies related to the diagnosis, grouping and offering of different learning experiences.

EDPE 4052: PEDAGOGICAL RESEARCH SEMINAR II, one (1) credit, three (3) lecture hours per week. Pre-requisite: EDPE 4051. Consists of one (1) hour of lecture and two (2) hours of practice per week. As a result of the experiences during the first seminar, students will carry out an investigation on strategies selected to correct the difficulties diagnosed in elementary school groups.

EDPE 4070: TEACHING PRACTICE FOR TEACHERS, three (3) credits, three (3) lecture hours per week. This course is directed to teachers in service interested in working as cooperating teachers. The prospective cooperating teacher will get familiarized with the theoretical frameworks that form the foundations of teaching practice in its legal, social, psychological and pedagogical dimensions. It includes the study of the basic principles of supervision and the analysis of teaching/learning situations. The student shall have the opportunity to examine the texts, manuals, documents and notice available. The opportunity to state and analyze problems and policies that affect the program is provided, and for the design of strategies for the improvement and integration of the existing processes.

EDPE 4085: SEMINAR ON THE EVALUATION OF PEDAGOGICAL STRATEGIES AND INNOVATIONS, one (1) credit, three (3) lecture hours per week. Pre-requisite: EDPE 2007. An evaluation of formal teaching practice. It forms part of a series of continuous experience and programs in which students will gradually participate. Students will analyze the strategies and innovations in order to use them in solving the difficulties found in the teaching-learning process. The seminar will meet in the classroom one hour per week. This will be complemented by two hours of clinical learning per week.

EDPE 4115: TEACHING OF SCIENCE AND MATHEMATICS IN THE ELEMENTARY SCHOOL, three (3) credits, three (3) lecture hours per week. Philosophical examination of the general concepts of science and mathematics. This is complemented by demonstrations and laboratory exercises. The following topics are discussed: biology, physics, geology, ecology, chemistry, astronomy and mathematics and the techniques used to teach them.

EDPE 4135: THEORY AND METHODOLOGY OF TEACHING SCIENCES IN THE SECONDARY SCHOOL, three (3) credits, three (3) lecture hours per week. A theoretical-practical approach to the teaching/learning process. All aspects related to the teaching of science in the secondary level will be studied: planning, innovative education and curricular analysis, basic content in the area, preparing, adapting and using resources, methodologies and teaching techniques, and the fundamentals of testing and evaluation. Students must complete at least fifteen (15) hours of laboratory. These experiences will enable them to develop critical, dynamic and creative attitudes toward the solution of problems.

EDPE 4136: PRACTICE IN TEACHING GENERAL SCIENCE IN THE SECONDARY SCHOOL, six (6) credits. During the semester the student is attached to a secondary public or private school for three hours daily, five days a week. Four of these days the student teaches and participates in all activities inherent to the teacher. All aspects related to the teaching of science in the secondary level will be studied: planning, innovative education and curricular analysis, basic content in the area, preparing, adapting and using resources, methodologies and teaching techniques, and the fundamentals of testing and evaluation. Students must complete at least fifteen (15) hours of laboratory. These experiences will enable them to develop critical, dynamic and creative attitudes toward the solution of problems.

EDPE 4137: PRACTICE TEACHING BIOLOGY IN THE SECONDARY SCHOOL, six (6) credits. During the semester the student is attached to a secondary public or private school for three hours daily, five days a week. Four of these days the student teaches and participates in all activities inherent to the teacher in a normal day: one day a week the student meets with his/her university professor to analyze and discuss the problems faced by the student during his/her teaching practice. In this laboratory the student is helped in his self-learning by a Supervising Teacher, the school's director and a university professor.

EDPE 4155: METHODOLOGY FOR TEACHING HISTORY AND SOCIAL STUDIES IN THE SECONDARY SCHOOL, three (3) credits, three (3) lecture hours per week. A theoretical-practical approach to the teaching/learning process. All aspects related to the teaching of the social sciences in the secondary level will be studied: planning, innovative education and curricular analysis, basic content in the area, preparing, adapting and using resources, methodologies and teaching techniques, and the fundamentals of testing and evaluation. Students must complete at least fifteen (15) hours of laboratory. These experiences will enable them to develop critical, dynamic and creative attitudes toward the solution of problems.

EDPE 4156: PRACTICE IN TEACHING SOCIAL STUDIES IN THE SECONDARY SCHOOL, six (6) credits. During the semester the student is attached to a secondary public or private school for three hours daily, five days a week. Four of these days the student teaches and participates in all activities inherent to the teacher in a normal day: one day a week the student meets with his/her university professor to analyze and discuss the problems faced by the student during his/her teaching practice. In this laboratory the student is helped in his self-learning by a Supervising Teacher, the school's director and a university professor.

EDPE 4215: METHODOLOGY OF TEACHING PHYSICAL EDUCATION IN THE SECONDARY SCHOOL, three (3) credits, three (3) lecture hours per week. A theoretical-practical approach to the teaching/learning process. All aspects related to the teaching of the

social science in the secondary level will be studied: planning, innovative education and curricular analysis, basic content in the area, preparing, adapting and using resources, methodologies and teaching techniques, and the fundamentals of testing and evaluation. Students must complete at least fifteen (15) hours of laboratory. These experiences will enable them to develop critical, dynamic and creative attitudes toward the solution of problems.

EDPE 4216: PRACTICE IN TEACHING PHYSICAL EDUCATION IN THE SECONDARY SCHOOL, six (6) credits. During the semester the student is attached to a secondary public or private school for three hours daily, five days a week. Four of these days the student teaches and participates in all activities inherent to the teacher in a normal day: one day a week the student meets with his/her university professor to analyze and discuss the problems faced by the student during his/her teaching practice. In this laboratory the student is helped in his self-learning by a Supervising Teacher, the school's director and a university professor.

EDPE 4216: PRACTICE IN TEACHING SPANISH IN THE SECONDARY SCHOOL, six (6) credits. During the semester the student is attached to a secondary public or private school for three hours daily, five days a week. Four of these days the student teaches and participates in all activities inherent to the teacher in a normal day: one day a week the student meets with his/her university professor to analyze and discuss the problems faced by the student during his/her teaching practice. In this laboratory the student is helped in his self-learning by a Supervising Teacher, the school's director and a university professor.

EDPE 4216: PRACTICE IN TEACHING SPANISH IN THE SECONDARY SCHOOL, six (6) credits. During the semester the student is attached to a secondary public or private school for three hours daily, five days a week. Four of these days the student teaches and participates in all activities inherent to the teacher in a normal day: one day a week the student meets with his/her university professor to analyze and discuss the problems faced by the student during his/her teaching practice. In this laboratory the student is helped in his self-learning by a Supervising Teacher, the school's director and a university professor.

EDPE 4235: METHODOLOGY OF TEACHING SPANISH IN THE SECONDARY SCHOOL, three (3) credits, three (3) lecture hours per week. A theoretical-practical approach to the teaching/learning process. All aspects related to the teaching of Spanish in the secondary level will be studied: planning, innovative education and curricular analysis, basic content in the area, preparing, adapting and using resources, methodologies and teaching techniques, and the fundamentals of testing and evaluation. Students must complete at least fifteen (15) hours of laboratory. These experiences will enable them to develop critical, dynamic and creative attitudes toward the solution of problems.

EDPE 4235: METHODOLOGY OF TEACHING SPANISH IN THE SECONDARY SCHOOL, three (3) credits, three (3) lecture hours per week. A theoretical-practical approach to the teaching/learning process. All aspects related to the teaching of Spanish in the secondary level will be studied: planning, innovative education and curricular analysis, basic content in the area, preparing, adapting and using resources, methodologies and teaching techniques, and the fundamentals of testing and evaluation. Students must complete at least fifteen (15) hours of laboratory. These experiences will enable them to develop critical, dynamic and creative attitudes toward the solution of problems.

EDPE 4265: TEACHING ORIENTED TO THE DEVELOPMENT OF THOUGHT, three (3) credits, three lecture hours per week. Pre-requisites: EDFU 3001, 3003 and 3007. Co-requisite EDFU 4019. The course begins with the justification and characteristics of teaching oriented to the development of thought. The nature of thought as an educational objective, its basic components: concepts, skills and attitudes and how to promote their development through the teaching/learning process area analyzed. Several methodologies for the development of thought such as: meta cognition, the question and cooperative learning. This course will combine theoretical analysis with practice exercises and application which will allow. The student to integrate the concepts studied in the planning and realization of teaching for the development of thought. The strategy of exploration, conceptualization and application (E.C.A.), and the methodologies proposed for the development of thought will be practiced, and will serve as laboratory for the student registered in the course.

EDPE 4276: METHODS, TECHNIQUES AND STRATEGIES FOR TEACHING SCHOOL HEALTH, three (3) credits, three (3) lecture hours per week. Theoretical-practical analysis of the teaching/learning process. Different approaches related to health at the secondary level. The health curriculum is examined to determine the adequate technical methodologies or strategies for teaching the health course. Laboratory hours are required.

EDPE 4335: SEMINAR: CURRICULUM AND TEACHING IN THE ELEMENTARY SCHOOL, three (3) credits, three (3) lecture hours per week. Pre-requisites: EDFU 3002, 3007 and 3008. The course analyzes and discusses the implementation of the elementary school curriculum from K to 6. Special attention is given to the areas of writing operational objectives, the taxonomy of questions, individualized teaching, grouping students and the planning of learning activities.

EDPE 4340: TEACHING PRACTICE IN THE ELEMENTARY SCHOOL, six (6) credits, fifteen (15) contact hours per week. Pre-requisite: EDPE 4335. Participating students will teach three hours daily, five days a week for a semester, under the guidance and supervision of cooperating teachers and the supervisor of teaching practice. This teaching experience is enriched with lectures, demonstrations, guided observations, and the student's participation

in all activities inherent to the work of an elementary school teacher in active service. (The student is assigned the practice in the grade of their preference from K to 6).

EDPE 4485: SEMINAR ON THE INTEGRATION OF TEACHING PHYSICAL EDUCATION: three (3) credits, three (3) seminar hours per week, and three (3) hours of experiences in the laboratories of Public School System or private schools. The course is designed for future teachers in the elementary school and also for teachers in service. It emphasizes the analysis and discussion of the basic principles underlying the educational practices and curriculum of physical education in the elementary school. Activities for the acquisition by the student of the skills and attitudes necessary for the programming and development of the teaching/learning process are provided. General techniques and specialization in terms of developing objectives, plans and evaluation of the educational experiences.

EDPE 4487: TEACHING PRACTICE OF PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL, six (6) credits, three (3) hours daily five (5) days a week. The student teachers participate in the process of teaching/learning during three (3) consecutive hours five (5) days a week for a semester in the public schools of Puerto Rico. They will be guided and supervised by their cooperating teachers and a supervisor of teaching practice in physical education. This experience is enriched with lectures, demonstrations, guided observations, and the student's participation in all activities inherent to the work of a teacher in active service.

EING

EING 4008: WORKSHOP ON MATERIALS FOR TEACHING ENGLISH IN THE SECONDARY SCHOOL, three (3) credits, three (3) lecture hours per week. Presents to the elementary and secondary school teachers various aspects of the preparation and evaluation of materials for teaching English to the Spanish speaker. It offers a good quantity of audiovisual and audio-lingual materials and their possibilities for use in the classroom. It demonstrates how to handle electronic equipment and trains in the preparation of didactic and illustrative materials. Includes lectures, individual projects, visits to audiovisual centers, demonstration, etc.

EING 4015: TEACHING MIDDLE SCHOOL LEVEL ENGLISH TO SPANISH SPEAKING STUDENTS, three (3) credits, three (3) lecture hours per week. Reconciles the different approaches, methods and techniques recommended for the teaching of foreign modern languages, and develops a common philosophy in the teachers of a second language. Studies the impact of modern technology in the teaching of a foreign language through the use and

handling of electronic equipment and appropriate materials for the different levels. Demonstration classes with observation and discussion afterwards will be offered.

TEED

TEED 3025: AUDIOVISUAL EDUCATION WORKSHOP, three (3) credits, one (1) hour weekly lecture and five (5) hours per week of workshop. Discusses the characteristics and advantages of the different audiovisual resources for teaching in the elementary school. This workshop systematically analyzes the communication process and the applicable learning theories. It develops basic skills in the preparation of graphic materials.

TEED 4018: INTRODUCTION TO THE USE OF COMPUTERS IN EDUCATION, three (3) credits, three (3) lecture hours per week. This course is an introduction to the computer in education. The following aspects will be emphasized: the evolution and impact of computers in education: theories that support the integration of computers to education; what the teacher should know about designing a lesson for the computer: study of the investigations realized in this field and the selection and evaluation of educational programs. Students will practice with some programs for computers.

NURSING



BACHELOR'S DEGREE IN SCIENCE IN NURSING (0703)

The Bachelor's Degree in Nursing prepares generalist nurses with the competencies and skills to offer bio-psycho-social care to clients, families and community groups. They will act as managing leaders of health care, counselors and defenders of clients' rights. Graduates from the program are qualified to work in Puerto Rico or the United States. They are also qualified to continue graduate studies in any area of specialty.

MISSION

The Department of Nursing aims to offer a four-year program Bachelors of Science in Nursing. Our mission is to disseminate nursing knowledge that enables students to provide quality bio-social care to clients in different stages of growth and development, accomplished in part by integrating family and community groups, and by utilizing innovative technological tools. The Department of Nursing aspires to transmit ethical, moral and spiritual values, which will provide students with sensitivity and responsibility to social matters. Finally, the Department of Nursing is committed to stimulating students' critical thinking, analysis and research skills.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3101	Basic Spanish I	3
CISO 3121	Introduction to Social Sciences I	3
INGL 3101 ³⁶	Basic English I	3
INGL 3113	Oral Practice I	0
MATE 3035	Health Related Mathematics	3
BIOL 3008	Basic Topics in Biology	3
Total		15

³⁶ Students who score above 580 on the English language part of the College Board Examination will take INGL 3103-Intermediate English I and INGL 3104-Intermediate English II. This sequence does not require the oral practice laboratory.

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3102	Basic Spanish II	3
CISO 3122	Introduction to Social Sciences II	3
INGL 3102	Basic English II	3
INGL 3114 ³⁷	Oral Practice	0
BIOL 1011	Human Anatomy and Physiology I	4
BIOL 1012	Lab. for Human Anatomy and Physiology	0
QUIM 3051	Principles of General and Organic Chemistry I	5
QUIM 3052	Laboratory for Principles of General and Organic Chemistry I	0
Total		18

SECOND YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
CISO 3155	Fundamentals of Statistical Reasoning	3
ESPA 3208	Writing and Style	3
PSIC 3005	General Psychology	3
BIOL 1013	Human Anatomy and Physiology II	4
BIOL 1014	Lab. for Human Anatomy and Physiology II	0
INGL 3093	Conversational English or INGL 3015 English for the Sciences and Technology	3
ENFE 3100	Nursing Assessment	2
Total		18

SECOND SEMESTER

Code	DESCRIPTION	CREDITS
ENFE 3118	Fundamentals of Nursing	6
ENFE 3119	Laboratory for Fundamentals of Nursing	0
BIOL 2001	Elementary Microbiology	4
BIOL 2002	Laboratory for Elementary Microbiology	0
ENFE 3210	Pharmacotherapy	3

³⁷ It may be replaced by any Spanish General Education course listed on section General Education Program.

ENFE 4100	Pathological Physiology	4
Total		17

THIRD YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
SICI 3028	Application Software	3
ENFE 4107	Nursing Intervention in Medicine and Surgery	6
ENFE 4108	Lab. for Nursing Intervention in Medicine and Surgery	0
ENFE 4105	Mental Health and Psychiatry	5
ENFE 4106	Lab. Mental Health and Psychiatry	0
ENFE 4075	Introduction to the Research Process	3
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ENFE 4208	Family and Community Health	4
ENFE 4209	Lab. Family and Community Health	0
ENFE 4109	Normal and Complicated Pregnancy	5
ENFE 4110	Lab. Normal and Complicated Pregnancy	0
ENFE 3215	Nutrition and Diet Therapy	2
	General Education in Humanities ³⁸	3
HUMA xx	Elective	3
Total		17

³⁸ General Education courses will be selected as identified from section General Education Program.

FOURTH YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ENFE 4206	Pediatric Nursing	5
ENFE 4207	Lab. for Pediatric Nursing	0
ENFE 4216	Nursing Intervention with the Elderly Patient	4
ENFE 4217	Lab. for Nursing Intervention with the Elderly Patient	0
	General Education in Humanities***	3
ENFE 4307	Administration and Management of Nursing Services	3
	Electives	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ENFE 4300	The Role of Nursing	6
ENFE 4306	Contemporary Aspects of the Nursing Profession	2
HUMA xx	Free Elective	6
Total		14

Total credits: 134

ARTICULATED BACHELOR'S DEGREE IN SCIENCE IN NURSING³⁹

This Articulated Bachelor's Degree in Nursing is offered to the graduates of the Associate Degree in Nursing that have a minimum one year's experience. This Program will be offered only through Saturday and evening courses. This courses program is accredited by the NLNAC (www.nlnac.com). A total of sixty-one credits from the Associate Degree may be credited toward the Articulated Bachelor's Degree in Nursing.

FIRST AND SECOND YEAR

The following courses are credited towards the Articulated Degree in Nursing.

COURSES	CONTACT HOURS	CREDITS
Fundamentals of Nursing	60	4
Maternity and Gynecology	75	5
Medicine and Surgery	90	6
Pediatrics	75	5
Mental Health	64	4
	364 hours	Total 24

RELATED COURSES

COURSES	CREDITS
Credits in Biology	3
Anatomy and Physiology	6
Microbiology	3
General and Organic Chemistry	3
	Total 15

GENERAL EDUCATION COURSES

COURSES	CREDITS
Introduction to Social Sciences	3
Spanish	6
English	6
Mathematics	3
Psychology	3
	Total 21

³⁹ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

THIRD YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CISO 3122	Introduction to Social Sciences II	3
ENFE 3225	Integration of Theoretical and Clinical	4
ENFE 3226	Lab. Integration of Theoretical and Clinical	0
*ESPA	Components General Education	3
*INGL	Components General Education	3
ELECTIVE		3
		Total 16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
*HUMA ⁴⁰	Components General Education	3
SICI 3028	Applied Programming	3
ENFE 4100	Pathophysiology	4
CISO 3155	Fundaments of Statistical Reasoning	3
**ENFE 3210 ⁴¹	Pharmacology	3
		Total 16

SUMMER	DESCRIPTION	CREDITS
****ENFE 4228 ⁴²	Introduction to Nursing High Risk Mother and Child	4
*****ENFE 4229 ⁴³	Nursing Intervention with Children and Adolescents	4
		8

FOURTH YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
*HUMA	Components General Education	3

⁴⁰ General Education courses will be selected from among those identified in section General Education Program.

⁴¹ **.The student who took this course as part of the requirements for the associate degree.

⁴² ****Student who took this course as part of the requirements for the associate degree may take the place out exam.

⁴³ ***** Student who took this course as part of the requirements for the associate degree may take the place out exam.

ENFE 3215	Nutrition and Diet Therapy	2
***ENFE 4226 ⁴⁴	Psychiatric Nursing	4
***ENFE 4227 ⁴⁵	Lab. Psychiatric Nursing	0
ENFE 4075	Introduction to the Investigation Process	3
ENFE 4307	Administration and Management of Nursing Services	3
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ENFE 4208	Family and Community Health	4
ENFE 4209	Lab. Family and Community Health	0
ENFE 4216	Nursing Intervention with the Elderly Patient	4
ENFE 4217	Lab. Nursing Intervention with the Elderly Patient	0
	Free Elective	3
	Free Electives	3
Total		14

SUMMER**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
	Free Electives	3
ENFE 4306	Contemporary Aspects of the Profession	2
		5

ELECTIVES

Code	DESCRIPTION
ENFE 4400	School Health
ENFE 4495	Nursing Intervention in the Intensive Coronary Unit
ENFE 4405	Industrial Nursing
NURS 4406	Legal Aspects of Nursing

⁴⁴ *** The student who took this course as part of the requirements for the associate degree

⁴⁵ ***

ENFE 4407	Basic Skills in Health Preservation
ENFE 4408	Nursing in the Home and Hospice Health Systems
ENFE3006	Educating the family of an alcoholic and a Drug Addict
ENFE 3116	Forensic Nursing
ENFE 3105	Sexual Education and the Nursing Process
ENFE 3106	Wellbeing and the Nursing Process
ENFE 3109	The Pregnant Family and its Educational Process
ENFE 3115	Educating the Elderly Family

Total Bachelor's Degree: 74

Total Credits for the Articulated Program: 134

NOTES:

1. All nursing electives courses are three credit courses.
2. Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

FACULTY

Ramos, José Acevedo, M.S.C., C.N.S., DNP. *Associate Professor*, Master of Nursing Sciences, Clinical Specialist, University of Northeastern; Doctoral in Nursing, Clinical Specialist, Case Western Reserve University, Certificated in Genetic.

Colón Maltés, Josefa, M.S.N., C.N.S., *Professor*, Master of Sciences Nursing, Medicine and Surgery, Role Education, Critical Care, Pontifical Catholic University of Puerto Rico.

Corchado Cruz, Jorge, M.S.N., C.N.S., Ph. D. *Associate Professor*, Master of Sciences Nursing, Medicine and Surgery, Role Education, Critical Care, Pontifical Catholic University of Puerto Rico. Doctor of Philosophy in Nursing, Widener University.

González Cortés, Mayda, M.S.N., C.N.S., *Associate Professor*, Master of Sciences Nursing, Mental Health and Psychology, Rol Administration, Pontifical Catholic University of Puerto Rico.

Hernández Ramírez, Madeline, M.S.N., C.N.S., *Instructor*, Master of Sciences Nursing, Medicine and Surgery, Role Education, Rol Administration, Critical Care, Pontifical Catholic University of Puerto Rico.

González González, Elba, M.S.N., C.N.S., *Professor*, Master of Nursing Sciences, Family and Community, University of Puerto Rico, Medicals Science Campus. Certificate in Gerontological University of Puerto Rico, Medicals Science Campus.

González Medina, Migdalia, M.S.N., C.N.S., *Professor*, Master of Nursing Sciences, Mothers and Children, University of Puerto Rico, Medicals Science Campus. Certificate in Gerontological, University of Puerto Rico, Medicals Science Campus.

Hernández Medina, Primitiva, M.S.N., C.N.S., *Professor*, Master of Nursing Sciences, Mother and Children, University of Puerto Rico, Medicals Science Campus.

Irizarry López, Carmen, M.P.H., *Associate Professor*, Master of Public Health, University of Puerto Rico, Medicals Science Campus.

Jiménez Rosario, Nancy, M.S.N., C.N.S., *Associate Professor*, Master of Sciences Nursing, Occupational Health, Universidad del Sagrado Corazón; Master in Nursing Sciences, Medicine and Surgery, Role Education, Critical Care, Pontifical Catholic University of Puerto Rico. Candidacy Doctoral in Health Public. School of Medicine, Ponce, Puerto Rico.

López Forty, Migdalia, M.S.N., C.N.S., *Associate Professor*, Master of Nursing Sciences, Family and Community, University of Puerto Rico, Medicals Science Campus, Certificated in Genetic.

Nieves Rivera, Irma, M.S.N., C.N.S., *Professor*, Master of Nursing Sciences, Adults and Child Care, Rol Education, University of Puerto Rico, Medicals Science Campus.

Reyes Pérez, David, M.S.N., C.N.S., Ed. D., DMT-A, *Assistant Professor*, Master of Sciences Nursing, Medicine and Surgery, Rol Education, Critical Care, Pontifical Catholic University of Puerto Rico. Doctor of Education, Curriculum and Instructions, Inter American University of Puerto Rico. Certificated in Hyperbaric Chamber.

Santiago Santiago, Luz, M.S.N., C.N.S., *Assistant Professor*, Master of Nursing Sciences, Family and Community, Adult and Critical Care, Rol Education, University of Puerto Rico, Medicals Science Campus.

Tapia Maldonado, Lourdes, M.S.N., C.N.S., *Associate Professor*, Master of Nursing Sciences, Medicine and Family, Rol Education, University of Puerto Rico, Medicals Science Campus.

Valencia Cabrera, Carmen G., M.S.N., C.N.S., *Assistant Professor*, Master of Nursing Sciences, Mothers and Children, Rol Administration, University of Puerto Rico, Medicals Science Campus.

Jiménez Carrión, Raúl, MSN, C.N.S., Instructor, Master of Sciences Nursing, Mental Health and Psychology, Rol Education, Pontifical Catholic University of Puerto Rico.

LIST OF COURSES

BACHELOR PROGRAMS NURSING

ENFE 3100: NURSING ASSESSMENT, two (2) credits, six (6) laboratory hours per week. **Pre-requisite:** BIOL 1011, QUIM 3051. In this course, students are introduced to the nursing process, emphasizing the phase of assessment of the human being and family by means of a previously designed instrument. It includes the communication and interview techniques with emphasis on the physiological, psychological, social and spiritual aspects of the individual and the family. Students learn to assess deficiencies in the needs for SOF universal care, development and health deviation. Furthermore, the course helps students develop their skills in administering physical exams to healthy individuals, evaluating each of the systems of the human body.

ENFE 3105: SEXUAL EDUCATION AND THE NURSING PROCESS, three (3) credits, three (3) contact hours a week. Includes the anatomy and physiology of the human reproductive system, male and female; the development of pregnancy, family planning, marriage and divorce, and the last tendencies in the field of sexology.

ENFE 3106: WELLBEING AND THE NURSING PROCESS, two (2) credits. Introduction to the art of adequately using leisure periods, and its importance in the physical, mental, social and emotional of the individual. Nursing students have the opportunity to apply the principles discussed in the nursing process.

ENFE 3109: FAMILY, PREGNANCY AND THE EDUCATIONAL PROCESS: three (3) credits, three (3) contact hours per week. **Pre-requisites:** ENFE 1006. Study of the development of pregnancy from fertilization until puerperium. It includes theories of learning, the role of the father and psycho-prophylactic birth.

ENFE 3115: EDUCATION OF THE ADVANCED AGED ADULT FAMILY: three (3) credits, three (3) contact hours per week. Detailed study of older adults, with emphasis on their educational process, and their physical, mental, emotional and spiritual needs. It includes the most recent findings in this field.

ENFE 3116: Forensic Nursing three (3) credits, three (3) contact hours per week.

This course includes essential aspects of forensic nursing including the role of the nurses with rape victims from a bio-psycho-social intervention as well as the conviction process of the aggressor. The student exposes itself to the initial intervention with the victim, forensic interview and compilation of medical- legal evidence. In addition one becomes familiar with the suitable methods of report of cases, documentation and how to testify in court in the in case of sexual aggression. The handling of a violation victim and the laws are discussed to the legal aspects in that represent this crime. Finally include the excellent aspects to obtain the certification like professional of S.A.N.E Nursing. (Sexual Assault Nurse Examiner)

ENFE 3118: FUNDAMENTALS OF NURSING and ENFE 3119: FUNDAMENTALS OF NURSING LAB, six (6) credits, four (4) hours of lecture and six (6) hours of laboratory per week. Pre-requisites: BIOL 1011, BIOL 1013, QUIM 3051, ENFE 3100, PSIC 3005. In this course, students are introduced to the theory of self-care. Students visualize the human being as an individual within a society and a culture with universal needs of self-care, deviation from development and health deviation, complex and at the level of secondary intervention. Students are initiated into the role of self-care provider in partially compensatory system, the role of educator, counselor, and client and family advocate. They learn to recognize the legal aspects that affect the nursing profession, and the legal and ethical considerations when providing care. In the clinical laboratory, students learn the basic nursing skills which will guide them as agents of self-care and in their independent and interdependent functions.

ENFE 3210: PHARMACOTHERAPY, three (3) credits, three (3) contact hours per week. Pre-requisites: QUIM 305, MATE 3035. This course introduces students to the field of pharmacology which includes such topics as dilution, medication preparation and dosification. It includes an examination of the pharmacodynamics of medication in pediatric, adult and elderly clients. The course includes a discussion of the conversion system, drug calculation, oral, parenteral and topical administration of medication. Students utilize findings from pharmacological research and emphasize the role of the nursing professional in the management and administration of medication, considering the ethical, moral and legal aspects.

ENFE 3215: NUTRITION AND DIET THERAPY, two (2) credits, two (2) contact hours per week. Pre-requisites: QUIM 305, MATE 3035. This theoretical course deals with nutrition as an essential element in nursing care. Students learn the components of a balanced diet. It includes estimates and analysis of dietary needs of individuals in various stages of development, and specific diets in health deviations.

ENFE 3225: INTEGRATION OF THE CLINICAL THEORETICAL CONCEPTS IN NURSING and ENFE 3226: LABORATORY FOR INTEGRATION OF THE CLINICAL THEORETICAL CONCEPTS IN NURSING, four (4) credits, three (3) lecture hours and three (3) laboratory hours per week. Pre-requisites: ASSOCIATED DEGREE NURSING. In this course the students acquire the knowledge which contributes to their progression from and associate degree nurse to a generalist professional practitioner. Students are lectured on issues such as communication leadership, the expanded role of nurses and their professional functions. Students analyze the nursing approaches in the three systems of care which favor the satisfaction of the universal requirements, the development and deviation from health. Teaching techniques, formulation of a plan and lectures are discussed. The nursing process, with emphasis on nursing assessment and diagnosis, is discussed.

ENFE 4075: INTRODUCTION TO THE RESEARCH PROCESS, three (3) credits, three (3) contact hours. Pre-requisite: MATE 3035, CISO 3155. This course is designed to guide the student in applying the research principles for the promotion, restoration and maintenance of health. It includes two phases: in the first one, students receive the cognitive data about the historical evolution of research. Emphasis is given to problem-solving skills to help students visualize the steps followed in designing a study. Ethical, moral and legal issues for the researcher and the client are considered. Furthermore, the various designs or approaches to research are described. During the second phase, students are introduced to the reading of research extracts. They use critical thinking and logic to perform their analysis. Also, they apply the principles of electronic data processing which will facilitate their analytical process.

ENFE 4100: PATHOPHYSIOLOGY, four (4) credits, four (4) contact hours per week. Pre-requisites: BIOL 1011, 1013, QUIM 3051. Students are exposed to the basic concepts of human pathophysiology in adult deviation from health. Course content is based on physiological deviations, signs, symptoms, physical findings and laboratory results which result from disease. Students use this knowledge to formulate the nursing diagnosis. The course is designed in such a way as to allow students to integrate the knowledge obtained from other disciplines about the normal and pathological functioning of the organism.

ENFE 4105: MENTAL HEALTH AND PSYCHIATRY and ENFE 4106: MENTAL HEALTH AND PSYCHIATRY LAB, five (5) credits, three (3) hours of lecture and six (6) hours of laboratory per week. Pre-requisite: All previous courses. This course provides students with the knowledge of historical, ethical, moral, legal and social aspects of mental health. Recent developments in techniques of therapeutic communication in various stages of growth are analyzed. The course allows students to explore the study and application of the principles of promotion, restoration and maintenance of mental health in individuals and in groups according in the three stages of care. Personality theories and self-care are used to explain the human being's psychosocial dynamics. Students learn to identify existing

psychosocial deviations, and to place clients in the health care continuum, determining the factors that promote mental health and those that predispose clients to health deviation. Topics include neurosis, schizophrenia, affective disorders, personality disorders, alcoholism, drug addiction, suicide, psychosexual and organic disorders, psychosocial approach to the AIDS patient, rape, child abuse, domestic violence and abuse of the elderly. Students use their critical thinking skills to estimate, diagnose, plan and evaluate care for the mental patient.

ENFE 4107: NURSING INTERVENTION IN MEDICINE AND SURGERY and ENFE 4108: NURSING INTERVENTION IN MEDICINE AND SURGERY LAB, six (6) credits, three and one half (3.5) hours of lecture and seven and one half (7.5) hours of laboratory per week. Pre-requisite: All previous courses. The course introduces students to the knowledge and skills for nursing intervention with adult clients who experience deviation from the most common universal requirements (nutrition, elimination, rest, protection, security, oxygenation sexual satisfaction and development). The nursing process is used in its entirety as a method for problem-solving with emphasis on the validation of diagnosis through significant clinical data and evaluation of care given. Students use therapeutic communication techniques for gathering data. Students make critical evaluations to determine the clients' health needs. Nursing intervention is directed towards promotion, restoration and maintenance of health in collaboration with patients, their family and the interdisciplinary team. Students apply the ethical, moral and legal guidelines when dealing with adult clients in health deviation. Students use the findings of their research when providing nursing care in totally compensatory, partially compensatory and educational support systems.

ENFE 4109: NORMAL AND COMPLICATED PREGNANCY and ENFE 4110: NORMAL AND COMPLICATED PREGNANCY LAB, five (5) credits, three (3) hours of lecture and six (6) hours of laboratory per week. Pre-requisite: All previous courses. In this course students are exposed to bio-physiological, psychological, social and spiritual aspects of the expectant mother and her family. It deals with the care of the pregnant woman at the pre-natal, birth and puerperal stages and care of the newborn, both in normal and high risk situations. Emphasis is given to promotion, restoration and maintenance of health taking into account ethical, moral and legal aspects of the pregnant mother in a family context. Students develop and implement nursing care using therapeutic consideration and taking into account the client's educational needs for primary, secondary and tertiary intervention. Findings from research are used to provide students with innovative knowledge to care for the expectant mother and the newborn. The nursing process is used, with emphasis on diagnosis, planning and intervention in caring for the client, the family and dealing with the interdisciplinary team.

ENFE 4206: PEDIATRIC NURSING and ENFE 4207: PEDIATRIC NURSING I LAB six (6) credits, three (3) hours of lecture and six (6) hours of laboratory per week. **Pre-requisite:** All previous courses. This course discusses factors associated with growth and development and how they affect children and adolescents in their universal requirements and health deviation. Students use the nursing process to intervene with children and adolescents with health deviations in various health care systems. The concepts of health promotion, maintenance, rehabilitation and disease prevention are integrated. Furthermore, emphasis is given to ethical, moral and legal responsibilities when intervening with clients in this stage of growth and development. Findings from research are utilized to provide innovative care to this heterogeneous group.

ENFE 4208: FAMILY AND COMMUNITY HEALTH and ENFE 4209: FAMILY AND COMMUNITY HEALTH LAB, four (4) credits, two (2) contact hours six (6) hours of laboratory per week and. **Pre-requisite:** All previous courses. This course is designed to help students explore and apply principles for the promotion, restoration of health, and the prevention of disease in individuals, families or communities. Emphasis is given to the educational support system, and the role as patient counselor and advocate. Students examine ethical and moral principles and factors that influence health or health deviation in a community, using the nursing process. Epidemiological and bio-statistical concepts are used to identify health deviation in community groups. Students use critical thinking skills in developing research projects that contribute to manage various community groups. Students learn to identify family dynamics and promote self-care. Students are introduced to knowledge about legislative programs and political processes that affect health services. Also, levels of care are visualized, with emphasis on primary care with the goal of helping students recognize public health as a preventive dimension in nursing care.

ENFE 4216: NURSING INTERVENTION WITH THE OLDER PATIENT and ENFE 4217: NURSING INTERVENTION WITH THE OLDER PATIENT LAB,, four (4) credits, two (2) hours of lecture and six (6) hours of laboratory per week. **Co-requisite:** ENFE 4217. **Pre-requisites:** ENFE 4105, ENFE 4107 and 4109. This course develops the necessary skills for caring for older patients. Students will discuss demographics growth of this age group, their lifestyle, and theories of the aging process, biological, psychological, social and spiritual changes associated with this stage of development. Also discussed are diseases and conditions proper to aging, as well as the process of dying. Students are prepared to develop self-care among elderly patients, emphasizing education for health promotion.

ENFE 4226: PSYCHIATRIC NURSING and ENFE 4227: PSYCHIATRIC NURSING LAB, zero (0) credits, six (6) hours of laboratory work per week, four (4) credits, two (2) hours of lecture and six (6) hours of laboratory per week. **Pre-requisite:** ASSOCIATED DEGREE NURSING, ENFE 3225. Students identify psycho-social deviations and places the client in the health-disease continuum, determining factors which promote mental health and those

which predispose the patient to health deviations. Some of the topics discussed include: neurosis, schizophrenia, affective and personality disorders, alcoholism, drug addiction, suicide, psychosexual and organic disorders, psychosocial focus on patients with AIDS. Students use their critical thinking skills to estimate, diagnose, plan and evaluate care for the mental patient.

ENFE 4228: NURSING INTERVENTION WITH THE MOTHER AND THE HIGH RISK CHILD, four (4) contact hours per week. Pre-requisite: ASSOCIATED DEGREE NURSING, ENFE 3225. This course helps students broaden their knowledge of nursing care for mothers and high-risk children. It emphasizes education as preventative action for the self-care of this group. It also discusses gynecological conditions which affect the mother.

ENFE 4229: NURSING INTERVENTION WITH THE CHILD AND THE ADOLESCENT, four (4) hours of lecture per week. Pre-requisite: ASSOCIATED DEGREE NURSING. In this course, students further their knowledge about nursing care for children from their earliest infancy until adolescence. Factors associated with growth and developments are discussed, as well as the way in which they affect children and adolescents in their universal requirements and health deviations. Concepts of health promotion and maintenance, rehabilitation and illness prevention are integrated. Emphasis is given to the ethical, moral and legal responsibility when intervening with children and adolescents. Students use findings from research when offering innovative care to this group.

ENFE 4300: ROLE OF NURSING, six (6) credits, two (2) hours seminar and sixteen (16) hours of laboratory per week. Pre-requisite: All previous nursing courses. This course is designed so students may integrate all the knowledge acquired in a particular area of interest. Students will develop as leaders and have indirect contact with the instructors. Students will be responsible for their own learning by choosing experiences that will complement their professional development. Problems and questions which arise during clinical practice will be discussed during the seminar meetings.

ENFE 4306: CONTEMPORARY ASPECTS OF NURSING, two (2) credits, two (2) contact hours per week. Pre-requisite: All previous nursing courses. This course analyzes nursing as a profession. It includes a discussion of the most relevant professional tendencies of the profession in Puerto Rico and the United States. Topics such as professional image, legal and ethical issues, the influence of politics on nursing are discussed. The course also includes a discussion of professional organizations in Puerto Rico and the US, their policies and their regulations. It also includes an overview of the Code of Ethics and professional standards that regulate the nursing profession in Puerto Rico. The course analyzes the responsibility of the nursing professional within the independent role described by the laws that regulate the profession in Puerto Rico.

ENFE 4307: ADMINISTRATION AND MANAGEMENT OF NURSING SERVICES, three (3) credits, three (3) contact hours per week. **Pre-requisite:** All previous nursing courses. This course initiates students in the management responsibilities of the expanded role of nursing, taking into account independent practice. The course presents an analysis the various leadership roles, basic knowledge of evaluation of human resources and patterns of task assignment in a hospital environment. Students are led to value the legal responsibilities both from the perspective of a nursing professional as well as from the consumer of health services, personnel laws, labor relations, and job safety and health related issues. The course includes administrative theory, theory of change, with a main focus on the concepts of leadership and agent of change in the interdisciplinary team. Students are introduced to budget preparation skills.

ENFE 4400: SCHOOL HEALTH, three (3) credits, three (3) contact hours per week. Students learn about health promotion and maintenance in their role as school nurses. Emphasis is given to health estimate and the identification of cases through data obtained from school dossiers, results from screening tests, teacher and family observations. Students become familiar with the handling of minor illnesses in school children and with vaccination. They work in collaboration with the health and education team to coordinate follow up on children. Legal aspects of school nursing are discussed.

ENFE 4405: INDUSTRIAL NURSING, three (3) credits, three (3) contact hours per week. This course teaches students intervention and accident prevention skills for industrial areas. Emphasis is given to the health estimate and the identification of cases through data gathered from employee records, screening tests, and physical exam techniques. Emphasis is given to employment health and safety legislation and techniques of teaching-learning for adults.

ENFE 4406: LEGAL ASPECTS OF NURSING, three (3) credits, three (3) contact hours per week. This course deals with which affect the health professions. It prepares students to intervene in judicial proceedings. Students identify their legal responsibility with the profession, their clients and their families.

ENFE 4407: BASIC SKILLS IN HEALTH PRESERVATION, three (3) credits, four (4) contact hours per week. This course helps students become able to keep their own health and to contribute to the health of their families and communities. It includes basic nursing techniques, intervention in daily emergencies, and first aid for burns, poisoning and natural disasters.

ENFE 4408: NURSING IN HEALTH SYSTEMS IN HOMES AND HOSPICES, three (3) credits, three (3) hours contact per week. This course is designed to teach students about health care in homes and hospices. It includes topics relating to Medicare, eligibility

requirements, quality of services, supervision, interdisciplinary team management and internal organization, among others.

ENFE 4495: NURSING INTERVENTION IN THE CORONARY INTENSIVE CARE UNIT, three (3) credits, three (3) contact hours per week. Pre-requisite: Basic CPR and ENFE 4107.

This course provides students with basic knowledge of electrocardiography, identification, treatment, arterial and ventricular arrhythmias, and advanced cardiopulmonary resuscitation techniques. It prepares students to intervene with patients in the coronary intensive unit by identifying the needs of the critical client. Students learn to identify sophisticated equipment and machinery utilized in the management of clients suffering from these deviations.



OFFICE SYSTEMS



BACHELOR'S DEGREE IN OFFICE SYSTEMS (0318)

The Bachelor's Degree in Office Systems is a four-year course of study whose goal is to provide students with current techniques and procedures for office administration. Graduates of this program can work as administrative assistants, office administrators, administrative secretaries, instructors of business courses in private schools. They may also take the required education courses to become business teachers in public high schools. **The program is accredited by the Accreditation Council for Business Schools and Programs (ACBSP).**

FIRST YEAR⁴⁶

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS	HOURS
INGL 3101 ⁴⁷	Basic English I	3	3
INGL 3113	Oral Practice Basic English I	0	1
ESPA 3101	Basic Spanish I	3	3
SOFI 3001	Processing and Production of Business Documents I	3	3
SOFI 3206	Introduction to Manual Processing of Business Correspondence in Spanish	4	4
SOFI 3405	Ethics and Interpersonal Relations in the Office	3	3
Total		16	16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS	HOURS
INGL 3102	Basic English II	3	3
INGL 3114	Oral Practice Basic English II	0	1
ESPA 3102	Basic Spanish	3	3
SOFI 3002 ⁴⁸	Processing and Production of	4	4

⁴⁶ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

⁴⁷ Students who score above 580 on the English language part of the College Board Examination will take INGL 3103 - Intermediate English I and INGL 3104 - Intermediate English II. This sequence does not require the oral practice laboratory.

⁴⁸ This course must be passed with a C or better.

	Business Documents II		
	Electronic Processing of Business		
SOFI 3207 ⁴⁹	Documents in Spanish	4	4
	Theoretical Principles of the		
SOFI 3406	Emerging Information	3	3
	Technologies in the Office		
Elective	Elective	3	3
	Total	20	21

Second Year

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS	HOURS
INCO 3005	Business English I	3	3
ESCO 3001	Psychology of Communication	3	3
CISO 3121	Intro. to Social Science	3	3
SOFI 3003	Processing and Production of Business Documents III	3	3
SOFI 3307	Procedures for Handling Personal Information and Electronic Presentations	2	2
SOFI 3308	Procedures for Handling Electronic Spreadsheet and Data Base in the Modern Office	2	4
	Total	16	18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS	HOURS
INCO 3006	Business English II	3	3
PSIC 3005	General Psychology	3	3
MATE 3001	Introductory Mathematics	3	3
SOFI 3407	Advanced Procedures in Creative Business Documents with Integrated Programs	4	4
SOFI 3417	Procedures for the Manager of Web Pages and Electronic Publications in the Office	4	4
	Total	17	17

⁴⁹ *This course must be passed with a C or better.

THIRD YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS	HOURS
	General Education in Humanities ⁵⁰	3	3
	General Education in Science ⁵¹	3	3
MATE 3015	Elementary Statistics	3	3
INCO 3025	Conversational English I	1	2
SOFI _____	Guided Elective	3	3
SOFI 4401	Procedures and Technology for Administrative Professionals I	3	3
Total		16	17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS	HOURS
	General Education in Humanities****	3	3
	General Education in Science****	3	3
INCO 4055	Conversational English II	1	2
SOFI _____	Guided Elective	3	3
SOFI 4402	Procedures and Technology for Administrative Professionals II	3	3
SOFI 4417	Classification and Coding Methods in the Manual and Electronic Documents	3	3
Total		16	17

FOURTH YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS	HOURS
Elective	Elective	3	3
ADMI 3005	Administrative Theory	3	3
SOFI _____	Guided Elective	3	3
SOFI 4427	Computerized and Manual Accounting for Administrative Professionals	3	3

⁵⁰ General Education courses will be selected as identified from section General Education Program.

⁵¹ General Education courses will be selected as identified from section General Education Program.

SOFI 4437	Integration Seminar for Administrative Professionals	4	4
Total		16	16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS	HOURS
SOFI 4985	Internship and Seminar	5	15
INCO 4035	Business Translation	2	2
Elective	Elective	3	3
Elective	Elective	3	3
Total		13	23

Total Credits 130

ELECTIVES

The program requires nine (9) credits in guided electives, chosen with the approval of the academic advisor.

CODE	DESCRIPTION	CREDITS	HOURS
SOFI 4117	Intro. to Manual Processing of Business Correspondence in English	4	4
SOFI 4215	Processing and Advanced Production of Business Documents	3	3
SOFI 4115	Technical note-taking shortcuts in Spanish System and its application in emerging technology	3	3
SOFI 4217	Simulation of Specialized Roles in the Professional Office	3	3
SOFI 4216	Procedures for the Administration of the Legal Office and the Production of Legal Documents	4	4
<u>SOFI 4218</u>	Study and Analysis of Emerging Information Technologies and Ergonomics in the Office	3	3
<u>SOFI 4505</u>	In-Service Training Techniques	3	3
SOFI 4015	Basic Procedures of the Medical Office Billing	3	3

SOFI 4016	Procedures Manual and Electronic Medical Billing Plans	3	3
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**SUMMARY OF THE BACHELOR'S DEGREE
PROGRAM IN OFFICE SYSTEMS**

General Education	42 credits
Concentration courses	57 credits
Guided Electives	9 credits
Electives	12 credits
Other (3 Business, 7 additional English)	10 credits
TOTAL	130 credits

FACULTY

Cordero Zeno, Gisela, Ed. D., *Professor*, Doctor of Education, Curriculum and Teaching, Universidad Interamericana de Puerto Rico, Recinto Metropolitano; Master of Arts, Higher Education, Business Education, New York University.

Cruz Román, Miriam Z., Ed.D., *Auxiliar Professor*, Doctor of Education, Curriculum and Teaching, Pontificia Universidad Católica de Ponce, Puerto Rico; Master of Arts, Business Education, Universidad Interamericana de Puerto Rico.

Durán Nieves, Ingrid M., *Instructor*, Master of Arts, Business Education, Universidad Interamericana de Puerto Rico.

González González, Carmen, M.A., *Professor*, Master of Arts, Higher Education, Business Education, New York University.

Harrison Morales, Diana, Ed.D., *Professor*, Doctor of Education, Curriculum and Teaching, Pontificia Universidad Católica de Ponce, Puerto Rico; Master of Arts, Business Education, Universidad Interamericana de Puerto Rico.

Quiñones Castillo, Weyna, Ed.D., *Professor*, Doctor of Education, Curriculum and Teaching, Universidad Interamericana de Puerto Rico, Master of Arts, Higher Education, Business Education, New York University.

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Saavedra Serrano, Gloria, M.A., *Professor*, Master of Arts, Higher Education, Business Education, New York University.

Vélez Román, Vanessa, M.A., *Associate Professor*, Master of Arts, Business Education, Universidad Interamericana de Puerto Rico.

LIST OF COURSES

INCO

INCO 3005: BUSINESS COMMUNICATION I, three (3) credits, three (3) hours per week. **Pre-requisite:** INGL 3102. This course is designed for students in Business Administration and transfer students from Secretarial Sciences. Students are given training in the correct form of writing and communicating in business. Special attention is given to achieving effective communication in business and understanding the logical processes that involve the writing of a business letter.

INCO 3006: BUSINESS COMMUNICATION II, three (3) credits, three (3) contact hours per week. **Pre-requisite:** INCO 3005. This is the continuation of INCO 3005. Techniques for preparing written reports.

INCO 3007: ACCELERATED COURSE OF BUSINESS COMMUNICATION, four credits, three (3) hours of lecture per week. **Pre-requisites:** INGL 3102 or INCO 3012 or INCO 3104. This course will include the work usually covered in INCO 3005-3006, but it will also include a wider coverage of Communication problems, types of business letters as well as going in greater depth into the subject according to the abilities of students.

INCO 3025: CONVERSATIONAL ENGLISH FOR SECRETARIES, one (1) credit, two (2) contact hours per week. **Pre-requisite:** INCO 3102. This course has been designed for students seeking an Associate Degree in Secretarial Sciences. Practice is provided to develop the students ability to communicate orally in situations relevant to office routines.

INCO 4006: REPORT WRITING, three (3) credits, three (3) contact hours per week. **Pre-requisite:** INCO 3006. This course gives students experience in analyzing and writing various types of business reports, emphasizing long formal reports that require research. Considerable practice is given to writing problems and exercises that aid students in correcting and refining the use of the English language. Students are also trained in report-writing techniques. A long, formal report is required for the development of skills in presenting and interpreting report findings. Due to the nature of the course, enrollment should be limited to 20 students. Aspects of report writing are presented to students, including the different types of reports, their functions, goals and formats. Also presented are the research methods as well as the basic principles of communication students should master in order to produce dynamic and effective writing. A long formal analytical report is requested instead of a final examination.

INCO 4035: BUSINESS TRANSLATION, two (2) credits, two (2) contact hours per week. **Pre-requisite:** INCO 3032. The course is designed to develop skills in the techniques used in Spanish/English and English/Spanish translations. Emphasis is given to vocabulary, idioms, and structure of both languages as they apply to business, with special emphasis on the style and tone of the business letter.

INCO 4055: ADVANCED CONVERSATIONAL ENGLISH, one (1) credit, two (2) lecture weekly. **Pre-requisite:** INCO 3025. This course is designed for the students of the Office Systems Program. It aims to develop in the student advanced forms of oral communication related to office matters.

SOFI

SOFI 3001: PROCESSING AND PRODUCTION OF BUSINESS DOCUMENTS I, three (3) credits, three (3) contact hours per week. This is an introductory-level course to develop the touch-typing keyboarding skills and techniques necessary to efficiently operate electronic equipments. Emphasis is placed on the development of speed and accuracy skills. Production of business documents, such as: simple invitations, personal letters, personal-business letters, memoranda, and simple tables. Introduction to the teaching of typewriting rules, proofreading techniques, editing and electronic dictionaries. Introduction to the use of basic functions of a word processing program, operating systems, and other information technologies. Emphasis is placed on the development of ethics in the use of information technologies, positive human attitudes and working habits for the work environment.

SOFI 3002: PROCESSING AND PRODUCTION OF BUSINESS DOCUMENTS II, four (4) credits, four (4) contact hours per week. **Pre-requisite:** SOFI 3001. **Co-requisite:** SOFI 3207. Emphasis in the development of basic skills and the teaching of the typewriting theory. Teaching of the formats and production of business letters and memoranda in all styles with special notations and envelopes. Discussion of language and of word division rules for documents production, and proofreading techniques as well as electronic dictionaries. Handling internal and external business correspondence in all the aspects of the typewriting production. Use of the Internet for updating the addresses and the management of postal services. Presentation of intermediate functions of a word processing program, operating systems and other information technologies. Emphasis is placed on the development of ethics in the use of information technologies, positive human attitudes and working habits for the work environment. This course must be approved with a minimum grade of C.

SOFI 3003: PROCESSING AND PRODUCTION OF BUSINESS DOCUMENTS III, three (3) credits, three (3) contact hours per week. **Pre-requisite:** SOFI 3002. Emphasis in the development of basic skills and the teaching of the typewriting theory for the processing and

production of business forms and documents of frequent use in the contemporary office. Application of the parliamentary procedures for the effective coordination of meetings. Teaching of the templates for the production of: requisitions, purchase orders and invoices, transmittal letters, facsimiles, among others. In addition, job itineraries, news releases, outlines, agendas, meeting letters and memoranda, and minutes (record keeping documentation). Discussion of language and of word division rules for documents production, and proofreading techniques as well as electronic dictionaries. Presentation of advanced functions of a word processing program, operating systems and other information technologies. Emphasis is placed on the development of ethics in the use of information technologies, positive human attitudes and working habits for the work environment.

SOFI 3206: INTRODUCTION TO MANUAL PROCESSING OF BUSINESS CORRESPONDENCE IN SPANISH, four (4) credits, four (4) contact hours per week. Learning of basic speed-writing recording techniques, and standards application for the effective development of linguistic competences in business documents. Emphasis in the development of positive attitudes and work habits.

SOFI 3207: ELECTRONIC PROCESSING OF BUSINESS DOCUMENTS IN SPANISH, four (4) credits, four (4) contact hours per week. Pre-requisite: SOFI 3206. Integration and application of keyboarding skills, transcription skills, and rules for the effective handling of language competences in the transcription and editing of documents by means of electronic equipment. This course must be approved with a minimum grade of C.

SOFI 3307: PROCEDURES FOR HANDLING PERSONAL INFORMATION AND ELECTRONIC PRESENTATIONS, two (2) credits, two (2) contact hours per week. Pre-requisite: SOFI 3001. Co-requisite: SOFI 3308. Teaching the management of alpha-numeric keypad to the touch by using the electronic typewriter or computer for personal use and development of basic skills. Introduction to writing and production of documents such as letters, envelopes, vertical and horizontal centralization, tabulations and reports. Emphasize good work habits, basic techniques and collating errors.

SOFI 3308: PROCEDURES FOR HANDLING ELECTRONIC SPREADSHEET AND DATA BASE IN THE MODERN OFFICE, two (2) credits, four (4) contact hours per week. Pre-requisite: SOFI 3001. Co-requisite: SOFI 3307. Learning in the functions of electronic spreadsheets and data bases most used in the market by administrative professional. The student will prepare simple financial reports and be trained in designing and managing databases.

SOFI 3405: ETHICS AND INTERPERSONAL RELATIONS IN THE OFFICE, three (3) credits, three (3) contact hours per week. This is an introductory-level course which promotes self-esteem, emotional control, and effective communications. It includes a

discussion of essential competences for success in the workplace; such as problem solving, the decision process, conflict management skills, cultural diversity considerations, ethical conduct, stress management, and productivity. Community service is part of this course.

SOFI 3406: THEORETICAL PRINCIPLES AND THE EMERGING INFORMATION TECHNOLOGIES IN THE OFFICE, three (3) credits, three (3) contact hours per week. Teaching of theoretical concepts of the emerging information technologies. Furthermore, it has its impact on society and the human aspect in the use of different technologies.

SOFI 3407: ADVANCED PROCEDURES IN CREATIVE BUSINESS DOCUMENTS WITH INTEGRATED PROGRAMS, four (4) credits, four (4) contact hours per week. Pre-requisite: SOFI 3307, SOFI 3208. Elaboration of business documents with integrated programs. Application of advanced features of programs in creative work. Developing the skills of information search and management for the development of research.

SOFI 3417: PROCEDURES FOR THE MANAGER OF WEB PAGES AND ELECTRONIC PUBLICATIONS IN THE OFFICE, four (4) credits, four (4) contact hours per week. Pre-requisite: SOFI 3002. Teaching procedures for the manage of Web Pages and electronic publications in the office. Design and creation of electronic publications, such as: brochures, web pages, handouts, flyers, and other office documents.

SOFI 4015: BASIC PROCEDURES OF THE MEDICAL OFFICE BILLING, three (3) credits, three (3) contact hours per week. Pre-requisite: SOFI 3003. Study of the concepts, terminology, documents, forms, legal and ethical issues related to the handling of information used by the Administrative Professional in the medical office. Study of basic and fundamental processes for electronic invoicing using specialized software.

SOFI 4016: PROCEDURES MANUAL AND ELECTRONIC MEDICAL BILLING PLANS, three (3) credits, three (3) contact hours per week. Pre-requisite: SOFI 4015. Learning the basics of billing health plans through a program for medical billing. Provides integrated application of skills and knowledge: codification of procedures and medical diagnoses, medical billing plans manually and electronically, general audit procedures and grievance procedures to medical plans bill unpaid, through practice classroom.

SOFI 4017: DESING AND DOCUMENT MANAGEMENT FOR PROFESSIONALS, three (3) credits, three (3) contact hours per week. Keyboard teaching using the computer. Production and editing of documents with application to different disciplines. Emphasis on the preparation of documents for the job search, such as cover letter and resume. In addition, there were other personal and business documents such as letters, memos, envelopes and simple reporting. Development of attitudes and work habits and basic techniques.

SOFI 4030: DESKTOP PUBLISHING, three (3) credits, three (3) contact hours per week. Teaching of basic concepts of publications design in a computer. Training in the design, creation, and production of professional publications in the office environment. .

SOFI 4115: TECHNICAL NOTE-TAKING SHORTCUTS IN SPANIS SYSTEM AND ITS APPLICATION IN EMERGING TECHNOLOGIES, three (3) credits, three (3) contact hours per week. Introduction to the teaching of basic principles to take notes quickly in a short Spanish. Developing the skill of speed, retention of words and the skill of taking dictation with emphasis on its application to diverse information technologies. It includes strengthening the skills of grammar and spelling in Spanish for a better transcript.

SOFI 4117: INTRODUCTION TO MANUAL PROCESSING OF BUSINESS CORRESPONDENCE IN ENGLISH, four (4) credits, four (4) contact hours per week. **Pre-requisite:** INGL 3101. Teaching basic techniques for taking dictation and application of standards for the effective development of language skills in the transcription of business documents. Emphasis on the development attitudes and good work habits.

SOFI 4215: PROCESSING AND ADVANCED PRODUCTION OF BUSINESS DOCUMENTS, three (3) credits, three (3) contact hours per week. **Pre-requisite:** SOFI 3003. Emphasis on basic skill development and teaching of the theory typing for processing and production of specialized documents often used in contemporary offices. Implementation of updated procedures in the preparation of documents in the areas of banking, advertising, insurance, medicine, government, education, among others. Teaching business reports, circular letters, certificates, administrative documents, marketing, accounting documents, operational documents, among others. Presentation of manuals focusing on APA style. Discussion typing rules for the division of words in the document creation and application of matching techniques and electronic dictionaries. Emphasis on the development of ethics in the use of information technologies, the desirable qualities and good habits for the workplace.

SOFI 4216: PROCEDURES FOR THE ADMINISTRATION OF THE LEGAL OFFICE AND THE PRODUCTION OF LEGAL DOCUMENTS, four (4) credits, four (4) contact hours per week. **Pre-requisite:** SOFI 3002. Emphasis on the responsibilities and duties of administrative staff in the firm. Teaching and application of terminology, functions, procedures and production of legal documents such as affidavits, deeds, notarial index, locations, motions, among others. Analysis and interpretation of legal acts.

SOFI 4217: SIMULATION OF SPECIALIZED ROLES IN THE PROFESSIONAL OFFICE, three (3) credits, three (3) contact hours. **Pre-requisite:** SOFI 3308. Course that integrates the skills, knowledge and attitudes of administrative professional. Includes processing of documents in which students stimulate the work of administrative professional. Have the opportunity to make decisions, prioritize, edit, transcribe, edit documents and apply

proofreading techniques. Tasks will be provided for the student work documenting human resources offices, finance, accounting, public relations, among others.

SOFI 4218: STUDY AND ANALYSIS OF EMERGING INFORMATION TECHNOLOGIES AND ERGONOMICS IN THE OFFICE, three (3) credits, three (3) contact hours per week.

Pre-requisite: SOFI 3002. Teaching of theoretical concepts of the emerging information technologies. Furthermore, it has its impact on society and the human aspect in the use of different technologies.

SOFI 4401: PROCEDURES AND TECHNOLOGY FOR ADMINISTRATIVE PROFESSIONALS I, three (3) credits, three (3) contact hours per week. Pre-requisite: SOFI 3003.

Emphasis on the duties, responsibilities, and the development of personal and professional characteristics of administrative professionals. Discussion and implementation of procedures for the administration in the modern office, business etiquette and protocol. Teaching the principles in decision-making for planning events and travel. It includes the study of techniques for the effective administration of the time for the best functioning of the office, and exploring the job market for the preparation of documents for the effective job search.

SOFI 4402: PROCEDURES AND TECHNOLOGY FOR ADMINISTRATIVE PROFESSIONALS II, three (3) credits, three (3) contact hours per week. Pre-requisite: SOFI 4401.

Teaching the principles that apply in the planning, organization, direction and control of activities typical of the different offices and in solving the problems that arise in them. Emphasis will be given to aspects related to human resources, ergonomic factors, ethical conduct, customer service, and entrepreneurship. Discussion of issues relating to global markets.

SOFI 4417: CLASSIFICATION AND CODING METHODS IN THE MANUAL AND ELECTRONIC DOCUMENTS, three (3) credits, three (3) contact hours per week. Pre-requisite: SOFI 3308.

Teaching the rules for classifying and encoding systems and electronic manuals. Study the organization and procedures to file depending on the systems: alphabetic, numeric, geographical and by subject. Training methods and techniques for handling and document control, charge system, transfer, disposal of documents and data processing. Introduction to the different laws governing the control and disposal of documents.

SOFI 4427: COMPUTARIZED AND MANUAL ACCOUNTING FOR ADMINISTRATIVE PROFESSIONALS, three (3) credits, three (3) contact hours per week. Pre-requisite: SOFI 3308.

Accounting designed for administrative professional. Includes an overview of the basic elements and procedures of double entry bookkeeping, with proper application in the journal, the general ledger and the trial balance. Bank reconciliation and cash control system

fine. Preparation and analysis of financial statements. Study of a computerized accounting program.

SOFI 4437: INTEGRATION SEMINAR FOR ADMINISTRATIVE PROFESSIONALS, four (4) credits, four (4). **Pre-requisite:** SOFI 4402. Emphasis on the use and application of various electronic resources for interdisciplinary research on topics of business through the effective use of the Internet and its various resources for finding, obtaining and transmitting information in enterprises. Requires a formal oral and written presentation of research to the community.

SOFI 4505: IN-SERVICE TRAINING TECHNIQUES, three (3) credits, three (3) contact hours per week. Techniques for training the users of electronic equipment in the office. Development, management, coordination, and evaluation of training programs.

SOFI 4985: WORK INTERSHIP AND SEMINAR, five (5) credits, nine (9) contact hours per week. **Pre-requisite:** All concentration and guide electives courses. Supervised work internship in community offices. Students will participate in activities that will facilitate the transition between school and work during 200 hours each semester and 15 seminar hours.



PHYSICS-CHEMISTRY



**BACHELOR'S DEGREE OF
TECHNOLOGY IN INDUSTRIAL CHEMICAL PROCESSES
(4501)**

This is an applied curriculum which integrates knowledge in chemical engineering, chemistry and science for the support of engineering activities in an industrial scenario. Graduates of the program are prepared to enter careers in design, manufacturing, marketing, operation and maintenance in the field of chemical engineering technology. Graduates of this program can also work in areas such as: laboratory, quality control, industrial safety, water treatment, environmental control and other jobs related to chemical processes.

The program is a candidate for accreditation by the Accreditation Board for Engineering and Technology – Technology Accreditation Commission (ABET-TAC). ABET is the recognized accrediting agency for university programs in engineering and technology.

MISSION

To develop a chemical engineering technology program with industrial chemical processes emphasis, educating students to become responsible and competitive professionals who will serve the society and the industry.

EDUCATIONAL OBJECTIVES

The graduates will be able to:

1. Understand the principles of science, chemical engineering and technology that are required in the area of industrial chemical processes.
2. Demonstrate the technical and managerial skills required in the design, operation and maintenance of industrial chemical processes.
3. Demonstrate effective communication skills and the ability to work in technical teams.
4. Address the ethical and social implications of their profession and the commitment to continuous professional development.

STUDENT OUTCOMES

Graduates of the program will be able to:

1. Select and apply concepts, techniques, skills and updated resources in the area of chemical engineering technology.

2. Select and apply concepts of mathematics, science, engineering and technology in the assessment and solution of technological problems related to the chemical processes.
3. Conduct, analyze and interpret experiments and apply the results in the evaluation of a chemical process.
4. Design systems, components or processes for technological problems related to chemical processes.
5. Work efficiently as a member or leader of a technical team.
6. Identify, analyze and solve technological problems related to the chemical processes.
7. Apply written, oral, and graphical communication using adequate information resources.
8. Recognize the importance of self-directed continuing professional development.
9. Understand the social, ethical and professional responsibilities related to their academic preparation including respect for diversity.
10. Demonstrate knowledge about the contributions that chemical engineering technologists make to the local and international community.
11. Demonstrate commitment to quality and continuous improvement.
12. Apply knowledge and practical expertise in solving technological problems by the industrial application of inorganic chemistry, organic chemistry, analytical chemistry; physics and process stoichiometry.
13. Apply the concepts of chemical engineering unit operations such as mass transfer, heat transfer and fluid mechanics to the design, operation and maintenance of chemical processes.
14. Apply the principles of thermodynamics, process control and instrumentation, computer applications and materials science to the design, operation and maintenance of chemical processes.
15. Operate, test and monitor chemical process equipment in compliance with applicable regulations.

FIRST YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
TEQU 3001	General Chemistry for Technology I	3
TEQU 3002	General Chemistry for Technology Lab. I	1
MATE 3004	Algebra	3
INGL 3101 ^{*52}	Basic English I	3
INGL 3113*	Oral Practice I	0
ESPA 3101	Basic Spanish I	3
TEQU 3105	Intro. to Chemical Engineering Technology	3
Total		16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
TEQU 3003	General Chemistry for Technology II	3
TEQU 3004	General Chemistry for Technology Lab. II	1
MATE 3171	Pre-calculus I	3
ESPA 3102	Basic Spanish II	3
INGL 3102**	Basic English II	3
INGL 3114**	Oral Practice II	0
TEQU 3106	Computer Applications in Chemical Engineering Technology	3
Total		16

⁵² Students who score above 580 on the English language part of the College Board Examination will take INGL 3103-Intermediate English I and INGL 3104-Intermediate English II. This sequence does not require the oral practice laboratory.

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
TEQU 3107	Material and Energy Balance	3
QUIM 3025	Analytical Chemistry	4
QUIM 3026	Analytical Chemistry Lab.	0
ESPA 3208	Writing and Style	3
MATE 3172	Pre-calculus II	3
INGL 3015	English for Science and Technology	3
	General Education in Social Sciences ²	3
Total		19

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
QUIM 3450	Fundamentals of Organic Chemistry	5
QUIM 3451	Lab. for Fundamentals of Organic Chemistry	0
MATE 3031	Calculus I	4
TEQU 3201	Unit Operations I: Fluid Mechanics	3
TEQU 3205	Chemical Processes Supervision and Management	3
	General Education in Social Sciences ²	3
Total		18

THIRD YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
TEQU 3203	Unit Operations II: Heat Transfer	3
TEQU 3202	Unit Operations Lab. I	1
TEQU 4006	Mathematical Topics in Chemical Engineering Technology	3
TEQU 4007	Thermodynamic Principles	3
FISI 3001	General Physics I	3
FISI 3003	General Physics Lab. I	1
FILO 3005	Ethics	3
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
TEQU 3204	Unit Operations Lab. II	1
TEQU 4009	Advanced Unit Operations	3
FISI 3002	General Physics II	3
FISI 3004	General Physics Lab. II	1
QUIM 4011	Instrumental Analysis	3
QUIM 4012	Instrumental Analysis Laboratory	0
	General Education in Humanities ²	3
	Elective	3
	Total	17

FOURTH YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
TEQU 4021	Process Control and Instrumentation	3
TEQU 4022	Process Control and Instrumentation Lab.	1
TEQU 4015	Unit Operations Techniques	3
TEQU 4020	Unit Operations Techniques Lab.	0
BIOL 4001	General Biology Fundamentals	4
BIOL 4002	General Biology Fundamentals Lab.	0
TEQU 4037	Chemical Processes Seminar	1
	Free Elective	6
	Total	18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
TEQU 4016	Environmental Control	3
TEQU 4105	Topics in Chemical Processes Technology	3
TEQU 4018	Techniques and Regulations of the Pharmaceutical Industry	3
BIOL 4011	Industrial Microbiology	4
BIOL 4012	Industrial Microbiology Laboratory	0
	Free Elective	3
	Total	16

FACULTY

Acosta Colón, Ángel A., M.S., *Instructor*, Master of Science, Applied Physics, Purdue University.

Aponte Avellanet, Ibis L., M.S. Associate Professor, Master of Physics, University of Puerto Rico at Mayagüez.

De Jesús Reyes, Cándida, M.S., *Associate Professor*, Master of Sciences, Organic Chemistry, University of Puerto Rico at Mayagüez.

Fernández Martínez, Ivonne, M.S., *Associate Professor*, Master of Sciences, Chemistry, University of Puerto Rico at Mayagüez.

García Adarme, Ana, Ph.D., M.S.Ch.E., *Professor*, Doctor of Philosophy, Chemical Engineering, University of Puerto Rico at Mayagüez; Master of Sciences, Chemical Engineering, University of Puerto Rico at Mayagüez.

García Maldonado, Emiliano, Ph.D., *Professor*, Doctor of Philosophy, Organic Chemistry and Organometalics, University of California, Santa Barbara.

García Taulet, Rafael, M.B.A., *Instructor*, Master of Business Administration, Industrial Management, Interamerican University of Puerto Rico. Environmental Engineering Certification, University of Puerto Rico at Mayagüez.

Herrera Martínez, Fernando, Ph.D., *Professor*, Doctor of Philosophy, Analytical Chemistry-Physics, Michigan State University.

Infante Castillo, Ricardo, Ph.D., M.S., *Associate Professor*, Doctor of Philosophy, Applied Chemistry-Materials, Master of Science, Chemistry, University of Puerto Rico at Mayagüez.

Maldonado Maisonave, Carlos, Ph.D., M.S.Ch.E., *Assistant Professor*, Doctor of Philosophy, Chemical Engineering, University of Puerto Rico at Mayagüez; Master of Science, Chemical Engineering, University of Puerto Rico at Mayagüez.

Méndez Torres, Abel, M.S., *Associate Professor*, Master of Science, Physics-Biophysics, Universidad of Puerto Rico at Mayagüez.

Montalvo Rivera, Vanesa, M.S.Ch.E., *Associate Professor*, Master of Science, Chemical Engineering, University of Puerto Rico at Mayagüez.

Montes Cordero, Angel L., M.S., *Professor*, Master of Science, Organic Chemistry, University of Puerto Rico at Mayagüez.

Nery Gómez, Ph.D., M.S., *Assistant Professor*, Doctor of Philosophy, Physics – Chemistry, University of Puerto Rico at Río Piedras; Master of Science, Physics, University of Puerto Rico at Río Piedras.

Peña Hurtado, Guido, *Professor*, Doctor of Philosophy, Physics Oceanography, University of Puerto Rico at Mayagüez; Master of Science, Chemical Engineering, University of Puerto Rico at Mayagüez.

Pérez Arenas, César, M.S., *Professor*, Master of Science, Physics, University of Puerto Rico at Mayagüez.

Pérez Velázquez, Carlos, M.S., *Professor*, Master of Science, Physics, University of Puerto Rico at Mayagüez.

Rivera Castillo, Neftalí, M.S., *Associate Professor*, Master of Science, Physics, University of Puerto Rico at Mayagüez

Torres Díaz, Hirohito, Ph.D., P.E., *Associate Professor*, Doctor of Philosophy, Chemical Engineering, University of Pennsylvania.

Torres Navas, Sylka, M.S., *Professor*, Master of Science, Chemistry-Physics, University of Puerto Rico at Mayagüez.

Velázquez Reinaga, Néstor, M.S.Ch.E., *Professor*, Master of Science Chemical Engineering, University of Puerto Rico at Mayagüez.

LIST OF COURSES

ASTR

ASTR 3008: MODERN ASTRONOMY, three (3) credits, three (3) contact hours per week.

Pre-requisites: MATE 3005, MATE 3171. An introduction to modern astronomy, spherical astronomy, the solar system, the Milky Way, the structure and evolution of the stars, the interstellar medium and extra-galactic objects are discussed. Emphasis is given to modern observation methods. At the end of the semester there is a review of cosmology and the evolution of the universe.

CIFI

CIFI 3001: INTRODUCTION TO PHYSICAL SCIENCES I: three (3) credits, three (3) contact hours. The course aims to teach the structure and objectives of scientific knowledge through the discussion and analysis of original scientific papers. These include selections from most of the prominent scientists who have played a distinguished part in the development of science as a body of knowledge. Celestial and terrestrial motions and the structure of matter are the main problems studied.

CIFI 3002: INTRODUCTION TO PHYSICAL SCIENCES II: three (3) credits, three (3) contact hours. Continuation of CIFI 3001.

FISI

FISI 1001: TECHNICAL PHYSICS I, three (3) credits, three (3) contact hours per week. Introductory course in physics that concentrates on the technical applications of the fundamental concepts of kinematics, dynamics, analytical mechanics, energy, hydraulics and thermodynamics.

FISI 1002: TECHNICAL PHYSICS I LAB, one (1) credit, three (3) contact hours per week. Three hours a week, divided in the following manner: one hour of discussion of theory and two hours of experiments including mechanics and heat.

FISI 1003: TECHNICAL PHYSICS II, three (3) credits, three (3) contact hours per week.
Pre-requisites: MATE 1001, FISI 1001. The technical applications of electromagnetism, optics and modern physics are discussed.

FISI 1004: TECHNICAL PHYSICS II LAB, one (1) credit, three (3) contact hours per week.
Pre-requisites: FISI 1001, FISI 1002. These hours a week divided in the following manner: one hour of discussion and two hours of experiments including experiments on electromagnetism and optics.

FISI 3001: GENERAL PHYSICS I, three (3) credits, (3) three contact hours per week. Pre-requisites: MATE 3172 or MATE 3005. Introductory course to physics as a fundamental science. It offers a unified vision of physics emphasizing the principles of conservation, the concepts of fields and waves, and the atomic point of view of matter. The first semester covers kinematics, dynamics of the particle, energy, oscillatory movement, dynamics of a system of particles and the gravitational field.

FISI 3002: INTRODUCTION TO PHYSICS II, three (3) credits, three (3) contact hours per week. Pre-requisite: PHSC 3001. This course studies electrostatics, electromagnetism, electromagnetic waves and light, and some principle of modern physics and the structure of matter.

FISI 3003: GENERAL PHYSICS LABORATORY I, one (1) credit, three (3) contact hours per week. Pre-requisite: MATE 3005, MATE 3171. This course complements the knowledge acquired by students in class. It consists of a series of experiments designed to verify the laws of mechanics and thermodynamics.

FISI 3004: GENERAL PHYSICS LABORATORY II, one (1) credit, three (3) contact hours per week. Pre-requisites: FISI 3001, FISI 3003. This course includes experiments in electromagnetism, optics and modern physics.

FISI 3009 GENERAL PRINCIPLES OF ELECTRONICS: three (3) credits, three (3) hours of contact per week. Pre-requisites: CIFI 3002, MATE 3001. General course about the principles of electricity and electronics and their application to communications media. Emphasis is given to electric and magnetic concepts that allow for their adequate understanding with limited mathematical knowledge. A brief discussion of the development of electromagnetism will lead to a discussion of electrical conduction, both DC and AC, sources of electric energy, their interrelation and a discussion of electrical circuits. The functions of resistors, capacitors, inductors, transformers, generators, motors, diodes, transistors, oscillators and others will be studied to arrive at a basic theoretical understanding of the functioning of generally used electronic equipment. It includes relevant topics that help understand the evolution of electronics and communications towards digital systems. The social impact of these principles will be analyzed.

FISI 3011: UNIVERSITY PHYSICS I, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3061 or MATE 3031. Introductory physics course where some differential and integral calculus is used. The course includes: vector algebra, kinematics of particle in one and two dimensions, equilibrium, Newton's laws and law of gravitation, conservation of mechanical energy, study of the kinematics and dynamics of the rotation of a rigid body, conservation of energy and angular momentum for bodies in rotation, fluids mechanics and fundamentals of thermo-physics and thermodynamics.

FISI 3012: UNIVERSITY PHYSICS II, three (3) credits, three (3) contact hours per week.

Pre-requisite: FISI 3011. Second part of the introductory physics course where some differential and integral calculus is used. The course includes: harmonic motion, wave motion, electrostatics, electric potential, direct current, elements of electric circuits, magnetism, alternating current, Maxwell equations, and wave theory of light.

FISI 3013: UNIVERSITY PHYSICS LAB I, one (1) credits, three (3) contact hours per week.

This laboratory course is aimed at developing experimental skills in students. Experiments will be performed in the following areas: measurements, vectors, static's, linear and rotational kinematics, dynamics, conservation of momentum and energy, and thermal properties of water.

FISI 3014: UNIVERSITY PHYSICS LAB II, one (1) credit, three (3) contact hours per week.

Pre-requisites: FISI 3011, FISI 3013. This is a laboratory course aimed at developing experimental skill in students. Experiments will be performed in the following areas: oscillatory motion, waves, electrostatics, direct current, alternating current, Kirchhoff laws, geometrical and physical optics.

FISI 3171: PHYSICS I, four (4) credits, four (4) contact hours per week. Pre-requisites:

MATE 3031 or MATE 3183 or MATE 3144. Principles of mechanics, waves and thermodynamics for engineering and the physical sciences.

FISI 3172: PHYSICS II, four (4) credits, four (4) contact hours per week. Pre-requisites:

FISI 3171, MATE 3031 or MATE 3183 or MATE 3144. Principles of electricity, magnetism optics and modern physics for engineering and the physical sciences.

FISI 3173: PHYSICS I LABORATORY: one (1) credit, two (2) hours per week of laboratory.

Co-requisite: FISI 3171 or FISI 3162. Experiments in mechanics, waves and thermodynamics to complement PHYSICS I.

FISI 3174: PHYSICS II LABORATORY: one (1) credit, two (2) contact hours per week of laboratory.

Co-requisite: FISI 3172 or FISI 3162. Experiments in electricity, magnetism, optics and modern physics to complement PHYSICS II.

FISI 4985: UNDERGRADUATE RESEARCH, two (2) credits, six (6) contact hours per week.

Pre-requisite: FISI 3011. Supervised research in the area of physics that aims to interest, stimulate and offer the student experiences and training in scientific research.

INEL

INEL 3105: ELECTRICAL SYSTEMS ANALYSIS, three (3) credits, three (3) lecture hours per week. Pre-requisites: MATE 3032 or MATE 3184. Co-requisites: PHSC 3172 or PHYS 3162 and MATE 3063 or MATE 3185. Analysis of direct current and alternating current linear electric circuits, laws and concepts that characterize their behavior.

INGE

INGE 3011: ENGINEERING GRAPHICS I, two (2) credits, one (1) lecture hours and two one and half (2 ½) hours laboratories per week. Principles of graphic language. Fundamentals of delineation, analysis and solution of space problems, symbols and standards applied in engineering. Freehand drawing as a tool for visualization. Principles of orthographic projection, sections, auxiliary views and conventional practices. Pictorial drawings: axonometric, oblique and perspective. Introduction to descriptive geometry. Hand and computer aided drawing.

INGE 3012: ENGINEERING GRAPHICS II, two (2) credits. Two hours of lecture-drawing periods per week. Pre-requisite: INGE 3011. Underlying principles of the graphic language: fundamentals of delineation, analysis and solution of space problems, symbols and standards applied in engineering, spatial geometry: distances between planes and lines, angles between lines and planes, rotation problems. Introduction to graphical mathematics and nomography.

INGE 3016: ALGORITHMS AND COMPUTER PROGRAMMING, three (3) credits, three (3) lecture hours per week. Pre-requisites: MATE 3031 or MATE 3144 or MATE 3183. Development of algorithms and their implementation in a structured high level language. Programming techniques applied to the solution of engineering and mathematical problems.

INGE 3017: COMPUTER AIDED GRAPHICS, two (2) credits. Two hours of lecture – laboratory per week. Fundamentals of computer aided graphics in engineering. Description of the equipment, use of commercial solid modeling programs, modeling of geometric figures and documentation.

INGE 3031: ENGINEERING MECHANICS - STATICS, three (3) credits, three (3) lecture hours per week. Pre-requisites: MATE 3031 or MATE 3144 or MATE 3183. Analysis of force systems; the laws of equilibrium; analysis of simple structures; distributed loads; friction; centroids and moments of inertia.

INGE 3032: ENGINEERING MECHANICS - DYNAMICS, three (3) credits, three (3) lecture hours per week. Pre-requisite: INGE 3031 and (FISI 3161 or FISI 3171). Kinematics of

particles and rigid bodies; relations among force, mass and acceleration; kinetics of particles and rigid bodies; work and energy; impulse and momentum.

INGE 3035: ENGINEERING MECHANICS, three (3) credits, three (3) lecture hours per week. Pre-requisites: MATE 3031 or MATE 3144 or MATE 3183, FISI 3161 or FISI 3171. Analysis of force systems: the laws of equilibrium, friction, centroids and moments of inertia. Kinematics and dynamics of particles and rigid bodies.

INGE 3045: MATERIALS SCIENCE FOR ELECTRICAL ENGINEERS, three (3) credits, three (3) lecture hours per week. Pre-requisites: QUIM 3002. Co-requisite: FISI 3161 or FISI 3172. Principles that determine the properties of conductors, semiconductors, and insulators. Electromechanical properties: diffusion, electrical conduction, thermal conduction: magnetic and optical properties.

INGE 4001: ENGINEERING MATERIALS, three (3) credits, three (3) lecture hours per week. Pre-requisites: QUIM 3002 or QUIM 3042 and FISI 3161 or FISI 3171. A study of the basic principles that govern the properties and behavior of engineering materials: atomic structures, inter-atomic forces, amorphous and crystalline structures; phase transformations; mechanical properties; the study of capabilities and limitations of different materials, metals, polymers, ceramics and composites; introduction to corrosion.

INGE 4011: MECHANICS OF MATERIALS I, three (3) credits, three (3) lecture hours per week. Stresses and strains due to axial, torsional, and bending loads; shear and moment diagrams.

INGE 4012: MECHANICS OF MATERIALS II, three (3) credits, three (3) lecture hours per week. Pre-requisites: INGE 4011 and (MATE 3063 or MATE 3185). Analysis of statically determinate and indeterminate beams; stresses due to combined load; stress and strain transformation; column theory.

QUIM

QUIM 3001: GENERAL CHEMISTRY I, four (4) credits, three contact hours per week. Co-requisite: QUIM 3003. Introduction to the fundamental principles of chemistry, with emphasis on stoichiometry, atomic and molecular structure, nomenclature of inorganic compounds, the periodic chart, chemical bonding, thermodynamics, gases, liquids and solids.

QUIM 3002: GENERAL CHEMISTRY II, four (4) credits, three (3) contact hours per week. Co-requisite: QUIM 3004. Pre-requisites: QUIM 3001, QUIM 3003. This course emphasizes the following topics: solutions, chemical equilibrium, oxidation and reduction reactions, acids and gases, electrochemistry, kinetics and organic compounds.

QUIM 3003: GENERAL CHEMISTRY LAB I, zero (0) credits, three (3) contact hours per week. Co-requisite: QUIM 3001. This laboratory will complement the material studied in class. It includes laboratory safety techniques, and experiments in stoichiometry, thermodynamics, gases, liquids and solids.

QUIM 3004: GENERAL CHEMISTRY LAB II, zero (0) credits, three (3) contact hours per week. Co-requisite: QUIM 3002. This laboratory will complement the material studied in class. It includes experiments in chemical equilibrium, solutions, oxidation-reduction reactions, acids, bases, electrochemistry, ion analysis, kinetics and thermodynamics.

QUIM 3011: GENERAL, ORGANIC BIOCHEMISTRY I, five (5) credits, four (4) contact hours per week. This course includes the fundamental principles of general and organic chemistry for non-majors. It focuses on health, science and nutrition.

QUIM 3012: GENERAL, ORGANIC BIOCHEMISTRY II, five (5) credits, four (4) contact hours per week. Pre-requisites: QUIM 3011, QUIM 3013. This course includes the fundamental principles of general, organic and biochemistry for non-majors.

QUIM 3013: GENERAL, ORGANIC BIOCHEMISTRY LAB I, zero (0) credits, three (3) contact hours per week. This laboratory complements the theory discussed in QUIM 3011. It includes basic experiments in general, organic and biochemistry.

QUIM 3014: GENERAL ORGANIC BIOCHEMISTRY LAB II, zero (0) credits, three (3) contact hours per week. Pre-requisites: QUIM 3011, QUIM 3013. This course helps to develop skills in organic and biochemistry as applied to health and nutrition.

QUIM 3025: ANALYTICAL CHEMISTRY, four (4) credits, three (3) contact hours per week. Pre-requisites: QUIM 3002 or TEQU 3003. Co-requisites: QUIM 3026. Study of theory and methods for qualitative and quantitative analysis using gravimetric and volumetric methods, including potentiometric titration. Introduction to the spectrophotometric methods of analysis with emphasis on the ultraviolet-visible.

QUIM 3026: ANALYTICAL CHEMISTRY LAB, zero (0), six (6) contact hours per week. Co-requisites: QUIM 3025. Laboratory experiences in quantitative analysis emphasizing the determination of analytes in unknown samples by: gravimetric, volumetric, potentiometric and spectrophotometric techniques. Includes topics in statistical treatment of data.

QUIM 3051: PRINCIPLES OF GENERAL ORGANIC CHEMISTRY, five (5) credits, four (4) contact hours per week. A compendium of the principles of general chemistry and an introduction to organic chemistry. For students majoring in Nursing.

QUIM 3052: PRINCIPLES OF GENERAL ORGANIC CHEMISTRY LAB, zero (0) credits, three (3) contact hours per week. This course complements the theoretical course. It includes experiments in general and organic chemistry.

QUIM 3055: ANALYTICAL CHEMISTRY, four (4) credits, three (3) lecture and one (1) hour of laboratory per week. Pre-requisite: QUIM 3042 or QUIM 3002. Study of the basic topics of analytical chemistry. Emphasis is given to the theory and practice of current instrumental methods.

QUIM 3085: ENVIRONMENTAL CHEMISTRY, three (3) credits, three (3) contact hours per week. Pre-requisites: QUIM 3042 and QUIM 3002. Effects of human behavior on the biosphere, with particular attention to the chemistry involved in the process.

QUIM 3086: ENVIRONMENTAL CHEMISTRY LAB, Pre-requisites: QUIM 3055 and CHEM 3025. Co-requisite: QUIM 3085. Methodology of environmental chemical analysis which provides practical experience in spectrophotometric, volumetric, potentiometric and chromatographic procedures used for the analysis of water, air and soil. It requires field trips.

QUIM 3450 ORGANIC CHEMISTRY FUNDAMENTALS, five (5) credits, four (4) lecture hours per week and four (4) laboratory hours per week. Pre-requisite: QUIM 3002 or TEQU 3003. Co-requisite: QUIM 3451. Study of the fundamental principles of organic chemistry. It emphasizes properties, reactions, synthesis, and reaction mechanisms of organic compounds.

QUIM 3451: ORGANIC CHEMISTRY FUNDAMENTALS LABORATORY, zero (0). Co-requisite: QUIM 3450. Laboratory experiences applying standard techniques used in the synthesis, purification and identification of organic compounds.

QUIM 3461: ORGANIC CHEMISTRY I, four (4) credits, three (3) contact hours per week. Pre-requisite: QUIM 3002, QUIM 3004. The study of carbon compounds in functional groups, nomenclature, stereochemistry, synthesis, reactions and mechanisms. Also included are: a brief introduction to infrared spectroscopy, magnetic and nuclear resonance and mass spectrometry.

QUIM 3462: ORGANIC CHEMISTRY II, four (4) credits, three (3) contact hours per week. Pre-requisites: QUIM 3461, QUIM 3463. A continuation of the study of the carbon compounds in functional groups, nomenclature, stereochemistry, synthesis, reactions and mechanisms, including infrared spectroscopy techniques, magnetic and nuclear resonance and mass spectrometry.

QUIM 3463: ORGANIC CHEMISTRY I LAB, zero (0) credits, four (4) contact hours per week. This course complements QUIM 3461. It includes methods analysis, purification, identification and synthesis of organic compounds.

TEQU

TEQU 1001: INTEGRATED CHEMISTRY, five (5) credits, three (3) contact hours per week. **Co-requisite:** TEQU 1002. The properties of matter, atomic structure, chemical bonding, molecular structure, solutions, acids and bases. Introduction to organic chemistry.

TEQU 1002: INTEGRATED CHEMISTRY I LABORATORY, zero (0) credits, six (6) contact hours per week. **Co-requisite:** TEQU 1001. This lab includes experiments in volumetric analysis, density, paper and gas chromatography and solvent extractions.

TEQU 1003: INTEGRATED CHEMISTRY II, three (3) credits, three (3) hours per week. **Pre-requisite:** TEQU 1001. **Co-requisite:** TEQU 1004. Kinetics, chemical equilibrium, oxidation, oxidation and reduction, electrochemistry, thermodynamics, elementary organic chemistry.

TEQU 1004: INTEGRATED CHEMISTRY II LAB, zero (0) credits, six (6) contact hours. **Pre-requisites:** TEQU 1002. **Co-requisite:** TEQU 1003. This lab includes experiments in colorimetry, volumetric analysis, chemical reactions rates methods.

TEQU 1008: STOICHIOMETRY AND BALANCING OF EQUATIONS, two (2) credits, two (2) contact hours. This course includes a study of the principles of stoichiometry and balancing of matter.

TEQU 2001: INTEGRATED CHEMISTRY, four (4) credits, three (3) contact hours. **Pre-requisites:** TEQU 1003, TEQU 1004. Theory of volumetric analysis, gravimetric analysis, neutralization, electrochemistry, visible and UR spectrometry, atomic absorption, flame photometry, quantitative aspects of chemical equilibrium.

TEQU 2002: INTEGRATED CHEMISTRY III LAB, zero (0) credits, three (3) contact hours per week. **Pre-requisites:** TEQU 1004. **Co-requisite:** TEQU 2001. Classical methods of analysis, optical and electrical methods and chromatography. This lab meets twice a week.

TEQU 2003: CHEMISTRY IV (COMPENDIUM), four (4) credits, three (3) contact hours per week. **Pre-requisite:** TEQU 2001, TEQU 2002. **Co-requisite:** TEQU 2003. The theory of chromatography, infrared spectroscopy, polarimetry, reactivity and mechanisms, reactions and properties of functional groups, kinetics and equilibrium.

TEQU 2004: CHEMISTRY IV LABORATORY, zero (0) credits, three (3) contact hours per week. Pre-requisites: TEQU 2002. Co-requisite: TEQU 2004. It includes experiments in organic synthesis, polarimetry, distillation, spectra, infrared spectra, re-crystallization, functional organic analysis and identification of organic compounds.

TEQU 2007: PROCESS MEASUREMENT AND CONTROL, three (3) credits, three (3) contact hours per week. Control and measure systems for temperature, pressure, fluids, and liquids levels in industrial operations.

TEQU 2008: SEMINAR, one (1) credits, one (1) contact hours per week. Orientation on the Chemical Engineering Technology program and the role of the technician in industry and in the laboratory. The relationship between technology and other professions. Field trips to different industries and orientation on the technician's job in each one.

TEQU 2011: UNIT OPERATIONS I, four (4) credits, three (3) contact hours per week. Pre-requisites: TEQU 1008. Co-requisite: TEQU 2012. This course studies the principles of chemical engineering with emphasis on the processing of chemicals. It includes matter and energy balance and the principles that govern fluids and heat.

TEQU 2012: UNIT OPERATIONS LABORATORY I, zero (0) credits, four (4) contact hours per week. Co-requisite: TEQU 2011. This lab includes experiments in heat transfer, fluid behavior with emphasis on their industrial applications.

TEQU 2013: UNIT OPERATIONS II, four (4) credits, three (3) contact hours per week. Pre-requisites: TEQU 2011, TEQU 2012. Co-requisite: TEQU 2014. The study and discussion of the following processes: evaporation, distillation, extraction, sedimentation and other processes of mechanical separation.

TEQU 2014: UNIT OPERATIONS II LABORATORY, zero (0) credits, four (4) contact hours per week. Pre-requisites: TEQU 2011, TEQU 2012. Co-requisite: TEQU 2013. This lab includes the study of separation processes and control equipment, as applied to control processes.

TEQU 3001: GENERAL CHEMISTRY FOR TECHNOLOGY I, three (3) credits, three (3) contact hours per week. Co-requisite: TEQU 3002. Study and analysis of the following concepts: atomic structure, periodic table, stoichiometry, chemical bonding, molecular geometry, thermochemistry and gas laws. It emphasizes problem solving applied to industrial chemical processes.

TEQU 3002: GENERAL CHEMISTRY FOR TECHNOLOGY LABORATORY I, one (1) credit, three (3) contact hours per week. Co-requisite: TEQU 3001. Supervised practice of

laboratory experiments related to the following concepts: atomic structure, periodic table, stoichiometry, chemical bonding, molecular geometry, thermo-chemistry and gas laws.

TEQU 3003: GENERAL CHEMISTRY FOR TECHNOLOGY II, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 3001. Co-requisite: TEQU 3004. Study and analysis of the following concepts: solutions, kinetics, chemical equilibrium, thermodynamics, electrochemistry and materials. It emphasizes problem solving applied to industrial chemical processes.

TEQU 3004: GENERAL CHEMISTRY FOR TECHNOLOGY LABORATORY II, one (1) credit, three (3) contact hours per week. Pre-requisite: TEQU 3002. Co-requisite: TEQU 3003. Supervised practice of laboratory experiments related to the following concepts: solutions, kinetics, chemical equilibrium, thermodynamics, electrochemistry and material science.

TEQU 3105: INTRODUCTION TO CHEMICAL ENGINEERING TECHNOLOGY, three (3) credits, three (3) contact hours per week. Study of mathematical, physical and chemical principles applied to chemical processes and unit operations. Development of skills in the use and conversion of unit systems, experimental data evaluation, graphical representation of data and interpretation of physical and chemical properties diagrams.

TEQU 3106: COMPUTER APPLICATIONS IN CHEMICAL ENGINEERING TECHNOLOGY, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 3105. Study and application of basic principles in programming language and technical programs used in the field of Chemical Engineering Technology. It emphasizes the use of word processors, electronic data sheets and software for presentations.

TEQU 3107: MATERIAL AND ENERGY BALANCE, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 3105. Study of stoichiometry principles and calculations required to perform material and energy balances in a chemical process. Development of technical problems solving skills.

TEQU 3201: UNIT OPERATIONS I: FLUID MECHANICS, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 3107. Study of fluid flow fundamental principles. Design, operation and optimization of fluid flow systems.

TEQU 3202: UNIT OPERATIONS LABORATORY I, one (1) credit, three (3) contact hours per week. Pre-requisite: TEQU 3201. Supervised practice in the operation of equipment used to perform experiments in bench and pilot scale related to fluid flow, mechanic separation, and drying operations. Recording and evaluation of data used to prepare technical reports.

TEQU 3203: UNIT OPERATIONS II: HEAT TRANSFER, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 3201. Study of heat transfer modes, empirical relations, and analytical and graphical methods applied in the solution of problems related to the chemical processes.

TEQU 3204: UNIT OPERATIONS LABORATORY II, one (1) credit, three (3) contact hours per week. Pre-requisite: TEQU 3203. Supervised practice in the operation of equipment used to perform experiments in bench and pilot scale related to heat and mass transfer operations. Recording and evaluation of data used to prepare technical reports.

TEQU 3205: CHEMICAL PROCESSES SUPERVISION AND MANAGEMENT, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 3107. Study and application of managerial methods, production planning, quality, plant design and manufacturing budget in industrial chemical processes.

TEQU 4006: MATHEMATICAL TOPICS IN CHEMICAL ENGINEERING TECHNOLOGY, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3031. Study of calculus and differential equations topics with applications to chemical engineering technology.

TEQU 4007: THERMODYNAMIC PRINCIPLES, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 3201. Study of the basic principles of thermodynamics, the first and second laws of thermodynamics, power and refrigeration cycles, fluids properties, and chemical equilibrium.

TEQU 4009: ADVANCED UNIT OPERATIONS, three (3) credits, three (3) contact hours per week. Pre-requisites: TEQU 3203. Study and discussion of mass transfer operations such as distillation, absorption, adsorption, stripping, humidification and extraction.

TEQU 4015: UNITARY OPERATIONS TECHNIQUES, three (3) credits, two (2) contact hours per week. Pre-requisite: TEQU 4009. Co-requisite: TEQU 4020. Study of unit operations topics, with emphasis in research project development techniques.

TEQU 4016: ENVIRONMENTAL CONTROL, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 3003. Study of environmental pollution sources and the effects of the chemical industry on the environment. Description of methods and equipments used in environmental impact control. Includes environmental control topics in water resources, air and soil.

TEQU 4018: TECHNIQUES AND REGULATION OF THE PHARMACEUTICAL INDUSTRY, three (3) credits, three (3) contact hours per week. Study and discussion of local and federal regulations applicable to industrial chemical processes and the manufacturing industry in general.

TEQU 4019: BIOCHEMISTRY APPLICATIONS IN TECHNOLOGY, three (3) credits, three (3) contact hours per week. Pre-requisite: QUIM 4005. Introduction to microbiology and biochemistry, kinetics of reaction catalyzed by enzymes, kinetics of substrate, yield and production of biomass in cultures and cells. Analysis of biological reactions.

TEQU 4020: UNIT OPERATIONS TECHNIQUES LABORATORY, zero (0) credits, three (3) contact hours per week. Co-requisite: TEQU 4015. Study of unit operations topics, with emphasis in supervised research and development projects. Recording and evaluation of data used to prepare a technical portfolio.

TEQU 4021: PROCESS CONTROL AND INSTRUMENTATION, three (3) credits, three (3) contact hours per week. Pre-requisite: MATE 3031. Co-requisite: TEQU 4022. Study and evaluation of the dynamic models that describe a chemical process. Design of control strategies and process optimization.

TEQU 4022: PROCESS CONTROL AND INSTRUMENTATION LABORATORY, one (1) credit, three (3) contact hours per week. Co-requisite: TEQU 4021. Supervised practice in the operation of instruments and software required for simulation and optimization of industrial chemical processes.

TEQU 4025: METALLURGY, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 1003. The study of the relationship between mechanical properties of metals. It includes extractions, production, alloys, corrosion and malleability.

TEQU 4026: POLYMERS, three (3) credits, three (3) contact hours per week. Pre-requisite: QUIM 4005. It includes the discussion of crossed polymers, crystallization, molecular weight calculation, solvents, processing and cracking of polymers.

TEQU 4027: PETROLEUM, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 4009. The conversion of petroleum into useful by-products with emphasis on the unit operations, and description of the equipment involved.

TEQU 4028: HYDRAULICS, three (3) credits, three (3) contact hours per week. Pre-requisite: FISI 1002, TEQU 2011. Statics and dynamics of fluids; fluids in pipelines; open canals and vents; centrifuge pump and hydraulic turbines.

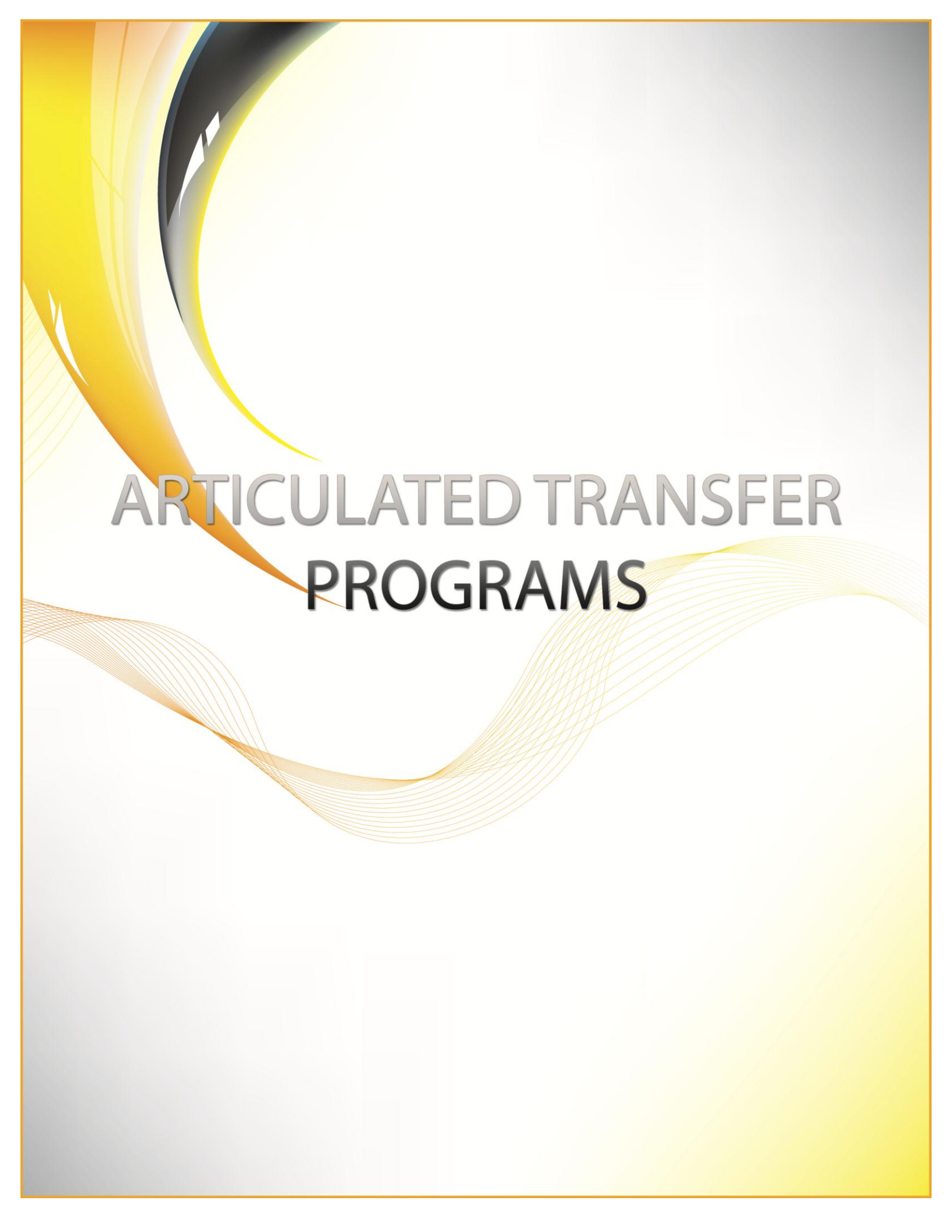
TEQU 4029: SIMULATION, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 4005, TEQU 4009. The study of numerical analysis, statistical analysis of data; linear and non-linear techniques; solutions; simulations by digital computers.

TEQU 4035: ENERGY CONVERSION, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 4008. The study of the different energy conversion methods. It includes the discussion of conventional and modern methods such as vapor generators, turbines, fuel cells, thermonuclear plants, solar energy.

TEQU 4036: PRINCIPLES OF SOLAR ENERGY, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 4008. Principles of solar radiation, methods of measuring solar radiation, transfer of energy into a collector, storage of thermal energy, active and passive systems of solar cells, indirect method of storing and using solar energy.

TEQU 4037: CHEMICAL PROCESSES SEMINAR. (1) credit, one (1) contact hour per week. Pre-requisite: TEQU 4009. Literature research oriented seminar in industrial chemical processes technology. An oral and written report is required.

TEQU 4105: TOPICS IN CHEMICAL PROCESSES TECHNOLOGY, three (3) credits, three (3) contact hours per week. Pre-requisite: TEQU 3003. Study and evaluation of selected Chemical Processes Technology related topics.



ARTICULATED TRANSFER PROGRAMS

DEPARTMENT OF EDUCATION

EDUCATION WITH UPR-CAYEY

The Department of Education offers an articulated transfer program with the University of Puerto Rico at Cayey for two concentrations in Bachelor's Degrees in Secondary Education: a concentration in Natural Sciences and a concentration in History.

Furthermore, it offers a Bachelor of Arts in Elementary Education with a concentration in Special Education. Students may take the first two years of these programs at UPR-Arecibo and transfer to UPR-Cayey without loss of credits or delay in curricular sequence.

Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

BACHELOR OF ARTS IN SECONDARY EDUCATION WITH CONCENTRATION IN NATURAL SCIENCES (0401)

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
BIOL 3011*	General Biology I	4
BIOL 3013*	General Biology I Laboratory	0
HUMA 3101	Western Civilization	3
CISO 3121	Intro. to Social Sciences	3
INGL 3101	Basic English I	3
INGL 3113	Basic English I Laboratory	0
MATE 3171	Pre-Calculus I	3
ESPA 3101	Basic Spanish I	3
Total		19

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
BIOL 3012*	General Biology II	4
BIOL 3014*	General Biology II Laboratory	0
HUMA 3102	Western Civilization II	3
CISO 3122	Intro. to Social Sciences	3

MATE 3172	Pre-Calculus II	3
ESPA 3102	Basic Spanish II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English II Laboratory	0
Total		19

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
INGL 3201	Grammar, Composition and Reading I	3
QUIM 3001*	General Chemistry	4
QUIM 3003*	Organic Chemistry I Laboratory	0
EDFU 3001	Human Growth and Development I	3
MATE 3031	Calculus I	4
Total		14

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
INGL 3202	Grammar, Composition and Reading II	3
EDFU 3007	Social Basis of Education	3
MUSI 3225	History of Music	3
QUIM 3002	General Chemistry II	4
QUIM 3004	Lab. General Chemistry II	0
Total		13

Total Credits 65

**BACHELOR OF ARTS IN SECONDARY EDUCATION
WITH MAJOR IN HISTORY⁵³
(0413)**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CIBI 3001	General Biology I	3
or		
CIFI 3001	Physical Sciences I	
HUMA 3101	Western Civilization	3
INGL 3101	Basic English I	3
INGL 3113	Basic English I Laboratory	0
MATE 3041	Intro. to Mathematics I	3
ESPA 3101	Basic Spanish I	3
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CIBI 3002	General Biology II	3
or		
CIFI 3002	Physical Sciences II	
HUMA 3102	Western Civilization II	3
MATE 3042	Intro. to Mathematics II	3
ESPA 3102	Basic Spanish II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English II Laboratory	0
Total		15

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
INGL 3201	Grammar, Composition and Reading I	3
CISO 3121	Intro. to Social Sciences I	3
HIST 3245	Compendium History of PR	3

⁵³ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

EDFU 3001	Human Growth and Development I	3
Total		12

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
INGL 3202	Grammar, Composition and Reading II	3
CISO 3122	Intro. to Social Sciences II	3
MUSI 3225	History of Music	3
EDFU 3007	Social Basis of Education	3
Total		12

Total Credits 54

**BACHELOR OF ARTS IN ELEMENTARY EDUCATION
WITH MAJOR IN SPECIAL EDUCATION⁵⁴
(0446)**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CIBI 3001	General Biology I	3
or		
CIFI 3001	Physical Sciences I	
HUMA 3101	Western Civilization	3
INGL 3101	Basic English I	3
INGL 3113	Basic English I Laboratory	0
MATE 3041	Intro. to Mathematics I	3
ESPA 3101	Basic Spanish I	3
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CIBI 3002	General Biology II	3
or		
CIFI 3001	Physical Sciences II	
HUMA 3102	Western Civilization II	3
MATE 3042	Intro. to Mathematics II	3
ESPA 3102	Basic Spanish II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English II Laboratory	0
Total		15

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
INGL 3021	Oral and Written English I	3
CISO 3121	Intro. to Social Sciences I	3
HIST 3245	Compendium History of PR	3
EDFU 3001	Human Growth and Development I	3
Total		12

⁵⁴ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
INGL 3022	Oral and Written English II	3
CISO 3122	Intro. to Social Sciences II	3
HIST 3111	American History I	3
or	or	
HIST 3112	American History II	
EDFU 3007	Social Basis of Education	3
	Total	12

Total Credits 54

EDUCATION WITH UPR-RÍO PIEDRAS

The Department of Education offers an articulated transfer program with the University of Puerto Rico at Río Piedras for five concentrations in Bachelor's Degrees in Secondary Education: Mathematics, Physics, Chemistry, and Teaching of English to Speakers of Spanish and Family Ecology. Students may take the first two years of these programs at UPR-Arecibo and transfer to UPR-Río Piedras without loss of credits or delay in curricular sequence. Furthermore, students may take the first year towards a Bachelor of Arts in Elementary Education with a concentration in Teaching of English to Speakers of Spanish.

Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

BACHELOR OF ARTS IN SECONDARY EDUCATION WITH CONCENTRATION IN CHEMISTRY (0403)

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3101	Basic Spanish I	3
INGL 3101	Basic English I	3
INGL 3113	Basic English I Laboratory	0
CISO 3121	Intro. to Social Sciences I	3
CIFI 3001	Physical Science I	3
HUMA 3101	Western Civilization I	3
MATE 3171	Pre-Calculus I	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3102	Basic Spanish II	3
INGL 3102	Basic English II	3
INGL 3112	Basic English II Laboratory	0
CISO 3122	Intro. to Social Sciences II	3
CIFI 3002	Physical Science I	3
HUMA 3102	Western Civilization II	3
MATE 3172	Pre-Calculus II	3
Total		19

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
INGL 3201	Grammar, Composition and Reading I	3
CIBI 3001	Biological Sciences I	3
QUIM 3001	General Chemistry	4
QUIM 3003	Organic Chemistry I Laboratory	0
EDFU 3001	Human Growth and Development I	3
ESPA 3211	Intro. to Spanish Literature I	3
HIST 3241 or HIST 3242 or HIST 4245	History of Puerto Rico	3
Total		19

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
INGL 3202	Grammar, Composition and Reading II	3
EDFU 3007	Social Basis of Education	3
MUSI 3225	History of Music	3
QUIM 3002	General Chemistry II	4
QUIM 3004	Lab. General Chemistry II	0
Total		13

Total Credits 65

**BACHELOR OF ARTS IN SECONDARY EDUCATION
WITH MAJOR IN MATHEMATICS
(0404)**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3101 or ESPA 3001 or ESPA 3111	Basic Spanish I or its equivalent	3
INGL 3101	Basic English I	3
INGL 3113	Basic English I Laboratory	0
CISO 3121	Intro. to Social Sciences I	3
CIFI 3001	Physical Science I	3
HUMA 3101	Western Civilization I	3
MATE 3171	Pre-Calculus I	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3102 or ESPA 3002 or ESPA 3112	Basic Spanish II or its equivalent	3
INGL 3102	Basic English II	3
INGL 3112	Basic English II Laboratory	0
CISO 3122	Intro. to Social Sciences II	3
CIFI 3002	Physical Science I	3
HUMA 3102	Western Civilization II	3
MATE 3172	Pre-Calculus II	3
Total		19

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
EDFU 3001	Human Growth and Development I	3
ESPA 3211	Intro. to Spanish Literature I	3
CIBI 3001	Biological Sciences I	3
HUMA 3201	Western Civilization III	3

INGL 3221	Intro. to Literature I	3
MATE 3031	Calculus I	4
Total		19

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
EDFU 3002	Human Growth and Development II	3
ESPA 3212	Intro. to Spanish Literature II	3
CIBI 3002	Biological Sciences II	3
HUMA 3202	Western Civilization IV	3
INGL 3222	Intro. to Literature II	3
HIST 4245	History of Puerto Rico	3
Total		18

Total Credits 73

**BACHELOR OF ARTS IN SECONDARY EDUCATION
WITH MAJOR IN PHYSICS⁵⁵
(0405)**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3101 or ESPA 3001 or ESPA 3111	Basic Spanish I or its equivalent	3
INGL 3101 or INGL 3103 or INGL 3011	Basic English I or its equivalent	3
INGL 3113	Basic English I Laboratory ⁵⁶	0
CISO 3121	Intro. to Social Sciences I	3
CIFI 3001	Physical Science I	3
HUMA 3101	Western Civilization I	3
MATE 3171	Pre-Calculus I	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3102 or ESPA 3002 or ESPA 3112	Basic Spanish II or its equivalent	3
INGL 3102 or INGL 3104 or INGL 3012	Basic English II or its equivalent	3
INGL 3112	Basic English II Laboratory*	0
CISO 3122	Intro. to Social Sciences II	3
CIFI 3002	Physical Science I	3
HUMA 3102	Western Civilization II	3
MATE 3172	Pre-Calculus II	3
Total		19

⁵⁵ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

⁵⁶ Laboratory is only for students who take INGL 3101-02

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
EDFU 3001	Human Growth and Development I	3
ESPA 3211	Intro. to Spanish Literature I	3
CIBI 3001	Biological Sciences I	3
HUMA 3201	Western Civilization III	3
INGL 3221	Intro. to Literature I	3
MATE 3031	Calculus I	4
Total		19

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
EDFU 3002	Human Growth and Development II	3
ESPA 3212	Intro. to Spanish Literature II	3
CIBI 3002	Biological Sciences II	3
HUMA 3202	Western Civilization IV	3
INGL 3222	Intro. to Literature II	3
HIST 4245	History of Puerto Rico	3
Total		18

Total Credits 73

**BACHELOR OF ARTS IN SECONDARY EDUCATION
WITH MAJOR IN TEACHING ENGLISH TO SPEAKERS OF SPANISH⁵⁷
(0411)**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3101 or ESPA 3001 or ESPA 3111	Basic Spanish I or its equivalent	3
INGL 3101 or INGL 3103 or INGL 3011	Basic English I or its equivalent	3
INGL 3113*	Basic English I Laboratory	0
CISO 3121	Intro. to Social Sciences I	3
CIFI 3001	Physical Science I	3
HUMA 3101	Western Civilization I	3
MATE 3041	Intro. to Mathematics I	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3102 or ESPA 3002 or ESPA 3112	Basic Spanish II or its equivalent	3
INGL 3102 or INGL 3104 or INGL 3012	Basic English II or its equivalent	3
INGL 3112*	Basic English II Laboratory*	0
CISO 3122	Intro. to Social Sciences II	3
CIFI 3002	Physical Science I	3
HUMA 3102	Western Civilization II	3
MATE 3042	Intro. to Mathematics II	3
Total		18

⁵⁷ Laboratory is only for students who take INGL 3101-02.

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
EDFU 3001	Human Growth and Development I	3
ESPA 3211	Intro. to Spanish Literature I	3
CIBI 3001	Biological Sciences I	3
HUMA 3201	Western Civilization III	3
INGL 3221	Intro. to Literature I	3
ARTE 3115	Art Appreciation	2
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
EDFU 3002	Human Growth and Development II	3
ESPA 3212	Intro. to Spanish Literature II	3
CIBI 3002	Biological Sciences II	3
HUMA 3202	Western Civilization IV	3
INGL 3222	Intro. to Literature II	3
HIST 3241 or HIST 3242 or HIST 4245	History of Puerto Rico	3
Total		18

Total Credits 71

**BACHELOR OF ARTS IN SECONDARY EDUCATION
WITH MAJOR IN FAMILY ECOLOGY
(0445)**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3101 or ESPA 3001 or ESPA 3111	Basic Spanish I or its equivalent	3
INGL 3101 or INGL 3103 or INGL 3011	Basic English I or its equivalent	3
INGL 3113*	Basic English I Laboratory ⁵⁸	0
CIBI 3001	Biological Sciences I	3
CIFI 3001	Physical Science I	3
HUMA 3101	Western Civilization I	3
MATE 3041	Intro. to Mathematics I	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3102 or ESPA 3002 or ESPA 3112	Basic Spanish II or its equivalent	3
INGL 3102 or INGL 3104 or INGL 3012	Basic English II or its equivalent	3
INGL 3112*	Basic English II Laboratory*	0
CIBI 3002	Biological Sciences II	3
CIFI 3002	Physical Science I	3
HUMA 3102	Western Civilization II	3
MATE 3042	Intro. to Mathematics II	3
Total		18

⁵⁸ Laboratory is only for students who take INGL 3101-02.

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
EDFU 3001	Human Growth and Development I	3
ESPA 3211	Intro. to Spanish Literature I	3
CISO 3121	Intro. to Social Sciences I	3
HUMA 3201	Western Civilization III	3
INGL 3221	Intro. to Literature I	3
ARTE 3115	Art Appreciation	2
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
EDFU 3002	Human Growth and Development II	3
ESPA 3212	Intro. to Spanish Literature II	3
CISO 3122	Intro. to Social Sciences II	3
HUMA 3202	Western Civilization IV	3
INGL 3222	Intro. to Literature II	3
HIST 4245	History of Puerto Rico	3
Total		18

Total Credits 71

**BACHELOR OF ARTS IN ELEMENTARY EDUCATION
WITH CONCENTRATION IN TEACHING ENGLISH TO SPEAKERS OF SPANISH⁵⁹
(0425)**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3101 or ESPA 3001 or ESPA 3111	Basic Spanish I or its equivalent	3
INGL 3101 or INGL 3103 or INGL 3011	Basic English I or its equivalent	3
INGL 3113*	Basic English I Laboratory	0
CISO 3121	Intro. to Social Sciences I	3
HUMA 3101	Western Civilization I	3
EDFU 3001	Human Growth and Development I	3
HIST 3241 or HIST 3242 or HIST 4245	History of Puerto Rico	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
ESPA 3102 or ESPA 3002 or ESPA 3112	Basic Spanish II or its equivalent	3
INGL 3102 or INGL 3104 or INGL 3012	Basic English II or its equivalent	3
INGL 3112*	Basic English II Laboratory*	0
CISO 3122	Intro. to Social Sciences II	3
HUMA 3102	Western Civilization II	3
HIST 3111 or HIST 3112	History of the U.S.	3
EDFU 3002	Human Growth and Development II	3
Total		18
		Total Credits 36

⁵⁹ The laboratory is only for students who take INGL 3101-3102.

ENGINEERING

Engineering is the application of knowledge to the process leading to the improvement of the quality of life for human beings through the use of natural resources.

The College of Engineering of the UPR Mayagüez Campus has won prestige in Puerto Rico and outside for the quality of its teaching, which has been confirmed by the Accreditation Board of Engineering and Technology (ABET) – which accredits engineering programs in U.S. universities – by accrediting its programs in Civil, Electrical, Industrial, Computer, Mechanical and Chemical Engineering. The University of Puerto Rico at Arecibo offers the first two years of these programs for the students in the northern region of Puerto Rico. The articulated transfer programs provides access to the engineering programs.

MAJOR IN SURVEYING AND TOPOGRAPHY (0506)

This program is under Civil Engineering Department. The study program for this concentration includes courses in the following areas: Surveying, Cartography, Photogrammetry and Geodesics.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3005* ⁶⁰	Pre-Calculus	5
QUIM 3001	General Chemistry I	4
QUIM 3003	General Chemistry I Laboratory	0
INGE 3011	Engineering Graphics I	2
INGL 3____*	A first year English Course	3
EDFI _____	An Elective in Physical Education	1
ESPA 3101*	Basic Spanish I	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3031	Calculus I	4
QUIM 3002	General Chemistry II	4
QUIM 3004	General Chemistry II	0

⁶⁰ * Subject to the student's College Board and SAT scores.

	Laboratory	
INGL 3012	Engineering Graphics II	2
INGL 3____*	A first year English Course	3
EDFI	An elective in Physical Education	1
ESPA 3102*	Basic Spanish II	3
	Total	17

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3032	Calculus II	4
FISI 3171	Physics I	4
FISI 3173	Physics I Laboratory	1
INGE 3031	Applied Mechanics - Static	3
INGL 3____	Second year English Course	3
ECON 3021	Principles of Economy I	3
	Total	18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3063	Calculus III	3
FISI 3172	Physics II	4
FISI 3174	Physics II Laboratory	1
INGE 3032	Applied Mechanics - Dynamics	3
INGL 3____	Second year English Course	3
INCI 4001	Topography I	3
INGE 3016	Algorithms and Computer Programming	3
	Total	20

MAJOR IN COMPUTER ENGINEERING (0507)

The design, programming and installment of systems using computers and digital systems is the field of Computer Engineering. This branch of engineering unites two fields: the physical aspect of the computer and its operational logic, of which programming is an application. Some areas represented in the courses offered are: programming languages, structuring data, information systems, digital processing of signals, and construction of compilers, artificial intelligence and design of digital systems.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3005* ⁶¹	Pre-calculus	5
QUIM 3001	General Chemistry I	4
QUIM 3003	General Chemistry I Laboratory	0
INGE 3011	Engineering Graphics I	2
ENGL 3____*	At first year of English Course	3
EDFI	Elective in Physical Education	1
ESPA 3101*	Basic Spanish I	3
Total		18

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3031	Calculus I	4
QUIM 3002	General Chemistry II	4
QUIM 3004	General Chemistry II Laboratory	0
INGL 3____*	First year English course	3
EDFI	An elective in Physical Education	1
ESPA 3102*	Basic Spanish II	3
ECON 3021	Principles of Economics I	3
Total		18

⁶¹ * Subject to the student's College Board and SAT scores.

SECOND YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
MATE 3032	Calculus II	4
FISI 3171	Physics I	4
FISI 3173	Physics I Laboratory	1
INGE 3035	Mechanics Applied to Engineering	3
INGL 3____	Second year English*	3
INGE 3016	Algorithms and Computer Programming	3
	Total	18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3063	Calculus III	3
FISI 3172	Physics II	4
FISI 3174	Physics II Laboratory	1
ELEC 3105	Analysis of Electrical Systems I	3
INGL 3____	Second year English	3
INGE 4001	Materials of Engineering	3
	Total	17

MAJOR IN CIVIL ENGINEERING (0501)

Civil Engineering's special function is the plan, design, management, building, operation and sale related to infrastructure projects so necessary for the functioning of modern society. This infrastructure includes homes, office and industrial buildings, roads and transportation systems that connect centers of human activity, waterworks and sewers and other waste disposal systems, as well as hydraulic structures for flooding control. To develop the aforementioned projects civil engineering with different specializations are needed. The principal specializations are: Structural, Geotechnical, Environmental, Transportation, Roads, Hydrological, Sanitary and Construction.

FIRST YEAR

First Semester

CODE	DESCRIPTION	CREDITS
MATE 3005* ⁶²	Pre-calculus	5
QUIM 3001	General Chemistry I	4
QUIM 3003	General Chemistry I Laboratory	0
INGE 3011	Engineering Graphics I	2
		3
ENGL 3____*	First year in English Course	
EDFI	Elective in Physical Education	1
ESPA 3101*	Basic Spanish I	3
	Total	18

Second Semester

CODE	DESCRIPTION	CREDITS
MATE 3031	Calculus I	4
QUIM 3002	General Chemistry II	4
QUIM 3004	General Chemistry II Laboratory	0
ENGE 3012	Engineering Graphics II	2
INGL 3____*	First year in English Course	3
EDFI	Elective in Physical Education	1
ESPA 3102*	Spanish Basic II	3
	Total	17

⁶² Subject to the student's College Board and SAT scores.

SECOND YEAR

First Semester

CODE	DESCRIPTION	CREDITS
MATE 3032	Calculus II	4
FISI 3171	Physic I	4
FISI 3173	Physic I Laboratory	1
INGE 3031	Engineering Mechanics-Dynamics	3
INGL 3____	Second year of English Course	3
INGE 3016	Algorithms and Computer Programming	3
Total		18

Second Semester

CODE	DESCRIPTION	CREDITS
MATE 3063	Calculus III	3
FISI 3172	Physics II	4
FISI 3174	Physics II Laboratory	1
INGE 3032	Engineering Mechanics-Dynamics	3
INGL 3____	Second year of English Course	3
INGE 4011	Mechanics of Materials I	3
Total		17

MAJOR IN ELECTRICAL ENGINEERING (0502)

Electrical engineering deals with the production, transportation, conversion, manipulation, control and use of electric and magnetic energy. The electrical engineer can work in the areas of design, development of products and processes, manufacturing, marketing, maintenance, technical support, test engineer, advisor, researcher, and in our times more than ever, as a community leader. There are five areas in which electrical engineers prepare: potency, control, electronics, applied electromagnetism and signal processing.

The objective of the potency area is to generate, convert, transmit, distribute and control, and generally, to use electric energy in a safe, economic, efficient and responsible manner. Potency systems engineers plans, design, build, operate, maintain and improve the infrastructure that provides electric energy to a region or a country. Electronic potency engineers design, build operate and maintain electronic circuits capable of dealing with quantities of energy greater than conventional electronic circuits; they are also responsible for providing the circuits that operate electrical energy to systems and devices that operates in non-conventional circumstances, such as space and satellites.

The area of automatic control studies the mathematical models of dynamic systems, their properties and how to modify these by using another dynamic system known as the controller. Knowledge in this area is applied to control chemical processes of any type of industrial machinery, terrestrial and aerospace vehicles, industrial robots, electricity generators, and others. Its area of greater impact today is in the automation of manufacturing processes.

The objective of the electronic area is to develop electrical engineers specialized in the analysis and design of analogical and digital systems. The engineer that completes the program of studies in electrical engineering will have ample opportunities for work in industry, government and educational institutions due to his/her fundamental knowledge of digital and analogical systems.

The area of applied electromagnetic concentrates on the generation, transmission and reception of electromagnetic waves and their interaction with natural and artificial environments. This area includes applications in telecommunications and remote perceptions. In telecommunications the student is involved in the study of microwave and optical circuits, theory and design of antennas, the propagation of waves in space and guided by transmission lines and wave guides. These components are essential for the development of cordless communication systems and telephony, as well as satellite

communications. Engineers that have graduate with this CONCENTRATION have contributed technological developments to our society such as: cellular phones, audio compact disks, DVD, satellite image processing and telecommunications networks.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3005* ⁶³	Pre-Calculus	5
QUIM 3001	General Chemistry I	4
QUIM 3003	General Chemistry I Laboratory	0
INGE 3011	Engineering Graphics I	2
INGL 3____*	First year course in English	3
EDFI	Elective in Physical Education	1
ESPA 3101*	Basic Spanish I	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3031	Calculus I	4
QUIM 3002	General Chemistry II	4
CHEM3004	General Chemistry II Laboratory	0
INGL 3____*	First year English Course	3
EDFI	Elective in Physical Education	1
ESPA 3102*	Basic Spanish II	3
Total		15

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3032	Calculus II	4
FISI 3171	Physics I	4
FISI 3173	Physics I Laboratory	1
INGE 3035	Engineering Mechanics	3
INGL 3____	Second year English Course	3
INGE 3016	Algorithms and Computer Programming	3
Total		18

⁶³ *Subject to the student's College Board and SAT scores.

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3063	Calculus III	3
FISI 3172	Physics II	4
FISI 3174	Physics II Laboratory	1
INEL 3105	Electrical Systems Analysis I	3
INGL 3____	Second year English Course	3
INGE 3045	Materials Science for Electrical Engineers	3
Total		17

MAJOR IN INDUSTRIAL ENGINEERING (0503)

Industrial Engineering involves the design, improvement and installation of integrated systems of people, materials, information, equipment and energy. This branch of engineering uses specialized knowledge in mathematics, the physical and social science, along with the principles and methods of analysis and engineering design to specify, predict and evaluate obtained results of these systems. Its areas of study include: cost analysis and control, the design of statistical systems, optimizing and using human resources, engineering economy, the design of physical facilities, the design of computer systems for decision-making and automatic manufacture systems.

Industrial engineering offers many alternatives. An industrial engineer can work in manufacturing plants, as well as in electronic, pharmaceutical, textile and food plants; in service facilities, banks, hospitals, cooperatives; in government and commerce. In Puerto Rico, industrial engineers are employed by manufacturing plant such as Hewlett-Packard, Baxter Co., Pollos Picú, Hanes Men's Wear, and others; in banks, hospitals and cooperatives; in government agencies or corporations such as Electric Energy Authority, Roads Authority, the Department of Transportation, Public Works, the Puerto Rico Telephone Co., and in the area of commerce by Pueblo Supermarkets and Mueblerías Mendoza.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3005 ^{*64}	Pre-Calculus	5
QUIM 3001	General Chemistry I	4
QUIM 3003	General Chemistry I Laboratory	0
INGL 3____*	First year English Course	3
Elective	Socio-Humanistic Elective	3
ESPA 3101*	Basic Spanish I	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3031	Calculus I	4
QUIM 3002	General Chemistry II	4
QUIM 3004	General Chemistry II	0

⁶⁴ *Subject to the student's College Board and SAT scores.

	Laboratory	
INGE 3011	Engineering Graphics I	2
INGL 3____*	First year English Course	3
EDFI	Elective in Physical Education	1
ESPA 3102*	Basic Spanish II	3
	Total	17

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3032	Calculus II	4
FISI 3171	Physics I	4
FISI 3173	Physics I Laboratory	1
INGE 3031	Engineering Mechanics - Statics	3
INGL 3____	Second year in English Course	3
INGE 3016	Algorithms and Computer Programming	3
	Total	18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3063	Calculus III	3
FISI 3172	Physics II	4
FISI 3174	Physics II Laboratory	1
INGE 3032	Engineering Mechanics - Dynamics	3
INGL 3____	Second year in English Course	3
INGE 4011	Mechanics of Materials I	3
EDFI	Elective in Physical Education	1
	Total	18

MAJOR IN MECHANICAL ENGINEERING (0504)

Mechanical engineering is the study of the science of machines. This study permits the efficient application of an ensemble of knowledge and techniques to optimize the use of materials and sources of energy. The mechanical engineer can intelligently devise ways to complete a task, and has the necessary knowledge to design and build machinery and artifacts, and to establish and direct the industries that depend on the mechanical arts.

The Mechanical Engineering Department abides by the requisites established by the accrediting organization in the United States: the Accreditation Board for Engineering Technology (ABET). The curriculum stated in this publication is directed to the attainment of a Degree of Bachelors of Science in Mechanical Engineering. This program offers to the student a variety of alternatives, according to his/her particular interest. Among the most significant contributions of mechanical engineers are:

- The development of new technologies designed for the improvement of the manufacturing and generation of energy processes and of the design of the mechanical systems.
- Advisory and consulting services for the private enterprise and the government.

Mechanical engineering covers the widest section of all the careers in engineering. Mechanical engineers can work in industry, teach in academic institutions, do consulting work, do technological and scientific research, work as technical equipment salespersons, and work in management positions, among others.

FIRST YEAR			
FIRST SEMESTER			
CODE	DESCRIPTION		CREDITS
MATE 3005* ⁶⁵	Pre-Calculus		5
QUIM 3001	General Chemistry I		4
QUIM 3003	General Chemistry I Laboratory		0
INGL 3___*	First year in English Course		3
EDFI	Elective in Physical Education		1
INGE 3011	Engineering Graphics I		2
ESPA 3101*	Basic Spanish I		3
Total			18

⁶⁵ *Subject to the student's College Board and SAT scores.

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3031	Calculus I	4
QUIM 3002	General Chemistry II	4
QUIM 3004	General Chemistry II Laboratory	0
INGL 3____*	First year English Course	3
Elective	Elective in Socio-Humanistic	3
EDFI	Elective in Physical Education	1
ESPA 3102*	Basic Spanish II	3
Total		18

SECOND YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
MATE 3032	Calculus II	4
FISI 3171	Physics I	4
FISI 3173	Physics I Laboratory	1
INGE 3031	Engineering Mechanics- Statics	3
INGL 3____	Second year English Course	3
INGE 3016	Algorithms and Computer Programming	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3063	Calculus III	3
FISI 3172	Physics II	4
FISI 3174	Physics II Laboratory	1
INGE 3032	Engineering Mechanics - Dynamics	3
INGL 3____	Second year English Course	3
INGE 3017	Computer Aided Graphics	2
Total		16

MAJOR IN CHEMICAL ENGINEERING (0505)

Chemical Engineering deals with the development and operation of chemical processes. Industrial scale production of chemical substances is the prototype of this activity. It begins with a chemical substance that is synthesized or discovered in the research laboratory. This step is followed by the design of the process, that is, of all the plant units where the substance will be produced in great quantity. And, finally, when the plant has been built, it is necessary to maintain the process in operating condition.

There are thousands of common use products that are the direct result of the work of chemical engineers. Among the most common are fuels, canned food, liquors, inks, fertilizers, synthetic rubber, refined metals, lubricants, medicines, synthetics fabrics, paints, insecticides, detergents and construction materials.

The application of this profession's knowledge is also present in many other ways in modern life, for example in the control and prevention of environmental pollution, the development of new energy sources, and the production of artificial human organs.

This profession's greatest attraction is the versatility of the work of a chemical engineer. Among the principal activities performed by chemical engineers are the direct supervision of the operation of plants and chemical processes, the improvement of existing chemical processes, research to develop new substances and chemical processes, design of unit operations or of the complete chemical plant, consulting for industry or government, sale of equipment to chemical plants and management of chemical plants.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3005*	Pre-Calculus	5
QUIM 3001	General Chemistry I	4
QUIM 3003	General Chemistry I Laboratory	0
ENGL 3_____	First year in English Course	3
Elective	Elective in Socio-Humanistic	3
ESPA 3101	Basic Spanish	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3031	Calculus I	4
QUIM 3002	General Chemistry II	4
QUIM 3004	General Chemistry II Laboratory	0
INGE 3102	Engineering Graphics II	2
ENGL 3____ *	First year in English Course	3
EDFI	Elective in Physical Education	2
ESPA 3102	Basic Spanish II	3
Total		18

SECOND YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
MATE 3032*	Calculus II	4
FISI 3171	Physics I	4
FISI 3173	Physics I Laboratory	1
QUIM 3450	Fundamentals of Organic Chemistry	5
INGL 3 ____ *	Second year in English Course	3
Elective	Elective	1
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3063	Calculus III	3
FISI 3172	Physics II	4
FISI 3174	Physics II Laboratory	1
QUIM 3055	Analytical Chemistry	4
INGL 3 ____ *	Second Year in English Course	3
INGE 3016	Algorithms and Computer Programming	3
Total		18

ASSOCIATE DEGREE IN CHEMICAL ENGINEERING TECHNOLOGY⁶⁶ (2015)

This is an applied curriculum which integrates knowledge in engineering and chemistry for the support of engineering activities in an industrial scenario. Students are prepared to perform in fields such as laboratory, manufacturing, operations and maintenance of chemical processes. Emphasis is given to the application of theory through an intense program of laboratory experiences.

The program is a candidate for accreditation by the Accreditation Board for Engineering and Technology – Technology Accreditation Commission (ABET-TAC). ABET is the recognized accrediting agency for university programs in engineering and technology.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
TEQU 1001	Integrated Chemistry I	5
TEQU 1002	Integrated Chemistry Lab.	0
MATE 3005	Pre-Calculus	5
INGL 3101*	Basic English I	3
INGL 3113*	Oral Practice I	0
ESPA 3101	Basic Spanish I	3
Total		16

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
TEQU 1003	Integrated Chemistry II	5
TEQU 1004	Integrated Chemistry II Lab.	0
TEQU 1008	Stoichiometry and Balancing of Equations	2
MATE 3031	Calculus I	4
INGL 3102 ⁶⁷	Basic English II	3
INGL 3114	Oral Practice II	0
ESPA 3102	Basic Spanish II	3

⁶⁶ Curricular sequences are continuously revised. Students are encouraged to check with their departments to be informed of the latest revisions.

⁶⁷ Students who score above 580 on the English language part of the College Board Examination will take INGL 3103-Intermediate English I and INGL 3104-Intermediate English II. This sequence does not require the oral practice laboratory.

Total		17
SECOND YEAR		
FIRST SEMESTER		
CODE	DESCRIPTION	CREDITS
TEQU 2001	Integrated Chemistry III	4
TEQU 2002	Integrated Chemistry III Laboratory	0
TEQU 2011	Unit Operations I	4
TEQU 2012	Unit Operations Laboratory	0
FISI 1001	Technical Physics I	3
FISI 1002	Technical Physics Laboratory I	1
CISO 3121	Intro. Social Sciences	3
Total		15

SECOND SEMESTER		
CODE	DESCRIPTION	CREDITS
TEQU 2003	Integrated Chemistry IV	4
TEQU 2004	Integrated Chemistry Laboratory	0
TEQU 2007	Control and Measurement of Processes	3
TEQU 2013	Unit Operations II	4
TEQU 2014	Unit Operations Laboratory	0
FISI 1003	Technical Physics II	3
FISI 1004	Technical Physics Laboratory II	1
TEQU 2008	Seminar on the Technology of Chemical Engineering	0
CISO 3122	Introduction to Social Sciences II	3
Total		18

Total credits 66**

ARTICULATED PROGRAMS IN THE HUMANITIES⁶⁸

ARTICULATED TRANSFER WITH UPR-RÍO PIEDRAS

UPRA's Department of Humanities and UPR Río Piedras offer an articulated bachelor's degree in Humanities with concentrations in Drama, Spanish, Philosophy, Art History, History of the Americas and English.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
CISO 3121	Intro. to Social Sciences I	3
INGL 3101	Basic English I	3
INGL 3113	Basic English I Laboratory	0
ESPA 3101	Basic Spanish I	3
HUMA 3101	Western Civilization I	3
HIST 3241	History of Puerto Rico I	3
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
CISO 3122	Intro. to Social Sciences II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English II Laboratory	0
ESPA 3102	Basic Spanish II	3
HUMA 3102	Western Civilization II	3
HIST 3242	History of Puerto Rico II	3
Total		15

⁶⁸ Students must have a copy of the curriculum from the instructional unit they selected due to changes in curricula. At the moment of receiving their academic counseling, students must present this curriculum to their academic advisor or the person who is conducting this process.

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
LITE 3011	Modern Literature I	3
TEAT 3025	Theater Appreciation	3
ARTE 3116	General History of Western Art	3
ESPA 3211	Intro. to Spanish Literature I	3
CIFI 3001	Intro. to Physical Sciences I	3
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
LITE 3012	Modern Literature II	3
ESPA 3208	Writing and Style	3
FILO 3005*	Ethics	3
ESPA 3212	Intro. to Spanish Literature II	3
CIFI 3002	Intro. to Physical Sciences II	3
Total		15

Total Credits 60

*Depending on the concentration, ARTE 3118 (History of Art in Puerto Rico) may be substituted for this course.

**ARTICULATED TRANSFER
WITH UPR-CAYEY⁶⁹**

UPRA's Department of Humanities and UPR-Cayey offer two articulated transfer programs in the Humanities: General Program and concentration in History.

**BACHELOR OF ARTS IN HUMANITIES WITH
MAJOR IN GENERAL PROGRAM**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
HUMA 3101	Western Civilization I	3
INGL 3101	Basic English I	3
INGL 3113	Basic English I Laboratory	0
ESPA 3101	Basic Spanish I	3
HIST 3241	History of Puerto Rico I	3
CIBI 3101	Intro. to Biological Sciences I	3
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
HUMA 3102	Western Civilization II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English II Laboratory	0
ESPA 3102	Basic Spanish II	3
HIST 3242	History of Puerto Rico II	3
CIBI 3102	Intro. to Biological Sciences II	3
Total		15

⁶⁹ Students must have a copy of the curriculum from the instructional unit they selected due to changes in curricula. At the moment of receiving their academic counseling, students must present this curriculum to their academic advisor or the person who is conducting this process.

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
HUMA 3201	Western Civilization III	3
CISO 3121	Intro. to Social Sciences I	3
ESPA 3211	Intro. to Spanish Literature I	3
INGL 3221	Intro. to Literature I	3
MATE 3041	Intro. to Mathematics I	3
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
HUMA 3202	Western Civilization IV	3
CISO 3222	Intro. to Social Sciences II	3
ESPA 3212	Intro. to Spanish Literature II	3
INGL 3222	Intro. to Literature II	3
MATE 3042	Intro. to Mathematics II	3
Total		15

Total Credits 60

**BACHELOR OF ARTS IN HUMANITIES WITH
MAJOR IN HISTORY⁷⁰**

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
HUMA 3101	Western Civilization I	3
INGL 3101	Basic English I	3
INGL 3113	Basic English I Laboratory	0
ESPA 3101	Basic Spanish I	3
HIST 3241	History of Puerto Rico I	3
CIBI 3101	Intro. to Biological Sciences I	3
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
HUMA 3102	Western Civilization II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English II Laboratory	0
ESPA 3102	Basic Spanish II	3
HIST 3242	History of Puerto Rico II	3
CIBI 3102	Intro. to Biological Sciences II	3
Total		15

⁷⁰ Students must have a copy of the curriculum from the instructional unit they selected due to changes in curricula. At the moment of receiving their academic counseling, students must present this curriculum to their academic advisor or the person who is conducting this process..

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
HUMA 3201	Western Civilization III	3
CISO 3121	Intro. to Social Sciences I	3
ESPA 3211	Intro. to Spanish Literature I	3
INGL 3221	Intro. to Literature I	3
MATE 3041	Intro. to Mathematics I	3
CIFI 3001	Intro. to Physical Science I	3
Total		18

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
HUMA 3202	Western Civilization IV	3
CISO 3222	Intro. to Social Sciences II	3
ESPA 3212	Intro. to Spanish Literature II	3
INGL 3222	Intro. to Literature II	3
MATE 3042	Intro. to Mathematics II	3
CIFI 3002	Intro. to Physical Science II	3
Total		18

Total Credits 66

ARTICULATED TRANSFER WITH UPR-CAROLINA⁷¹

UPRA's Department of Humanities and UPR-Carolina offer an articulated transfer program for a Bachelor of Arts in Multidisciplinary Studies with a concentration in Touristic Culture.

BACHELOR OF ARTS IN HUMANITIES WITH MAJOR IN TOURISTIC CULTURE

FIRST YEAR		
FIRST SEMESTER		
CODE	DESCRIPTION	CREDITS
HUMA 3101	Western Civilization I	3
INGL 3101	Basic English I	3
INGL 3113	Basic English I Laboratory	0
ESPA 3101	Basic Spanish I	3
HIST 3179	Social and Cultural History of the United States	3
FILO 3005	Ethics	3
Total		15
SECOND SEMESTER		
CODE	DESCRIPTION	CREDITS
HUMA 3102	Western Civilization II	3
INGL 3102	Basic English II	3
INGL 3114	Basic English II Laboratory	0
ESPA 3102	Basic Spanish II	3
ARTE 3116	General History of Art	3
FILO 4006	Logic I	3
Total		15
Total credits		30

⁷¹ Students must have a copy of the curriculum from the instructional unit they selected due to changes in curricula. At the moment of receiving their academic counseling, students must present this curriculum to their academic advisor or the person who is conducting this process.

ARTICULATED PROGRAMS IN MATHEMATICS

The Department of Mathematics at the Mayagüez Campus offers three programs leading to the Bachelor of Science degree with three majors: Pure Mathematics, Computers Science and Mathematics Education. The Bachelor of Science degree in Mathematics provides a solid preparation for students, enabling them to follow careers in industry, in government, in the field of education or to pursue graduate studies.

MATHEMATICS EDUCATION (1222)

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3005 ^{*72}	Pre-Calculus	5
QUIM 3001	General Chemistry I	4
QUIM 3003	General Chemistry I Laboratory	0
ENGL 3__*	First year English Course	3
BIOL 3011	General Biology I	4
BIOL 3013	General Biology I Laboratory	0
ESPA 3101*	Basic Spanish I	3
Total		19

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3031	Calculus I	4
QUIM 3002	General Chemistry II	4
QUIM 3004	General Chemistry II Laboratory	0
INGL 3__*	First year English Course	3
BIOL 3012	General Biology II	3
BIOL 3014	General Biology II Laboratory	0
EDFI	Free elective in Physical Education	1
ESPA 3102*	Basic Spanish II	3
Total		18

⁷² * Depending on the student's College Board and SAT scores.

SECOND YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
MATE 3032	Calculus II	4
MATE 3020	Mathematical Foundations	3
INGL 3__	Second Year English Course	3
CCOM 3001	Introduction to Computer Programming I	3
ESPA 3__	Second year Spanish Course	3
EDFI ____	Elective in Physical Education	1
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3063	Calculus III	3
ESPA 3__	Second year Spanish Course	3
INGL 3__	Second year English Course	3
MATE 3030	Introduction to Geometry	3
MATE 4031	Linear Algebra	3
EDFU 3007	Social Foundations of Education	3
Total		18

PURE MATHEMATICS (1205)

This major is designed for students who wish to pursue graduate studies in Mathematics. The program provides a solid base in Analysis and Algebra, complemented by electives in Geometry and Numbers Theory. Electives may be directed towards Applied Mathematics, Differential Equations or Statistics.

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3005 ^{*73}	Pre-Calculus	5
QUIM 3001	General Chemistry I	4
QUIM 3003	General Chemistry I Laboratory	0
INGL 3__*	First year in English Course	3
BIOL 3011	General Biology I	4
BIOL 3013	General Biology I Laboratory	0
ESPA 3101*	Basic Spanish I	3
Total		19

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3031	Calculus I	4
QUIM 3002	General Chemistry II	4
QUIM 3004	General Chemistry II Laboratory	0
INGL 3__*	First year in English Course	3
BIOL 3012	General Biology II	4
BIOL 3014	General Biology II Laboratory	0
EDFI	Free Elective	1
ESPA 3102*	Basic Spanish II	3
Total		19

⁷³ * Depending on the student's College Board and SAT scores.

SECOND YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
MATE 3032	Calculus II	4
MATE 3020	Mathematical Foundations	3
ENGL 3__	Second year English Course	3
CCOM 3010	Introduction to Computer Programming I	3
ESPA 3__	Second Year Spanish Course	3
EDFI ____	Elective in Physical Education	1
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3063	Calculus III	3
ESPA 3__	Second Year Spanish Course	3
INGL 3__	Second Year English Course	3
MATE 4031	Linear Algebra	3
FISI 3171	Physic I	4
FISI 3173	Physic I Laboratory	1
Total		17

SCIENCE WITH MAJOR IN COMPUTATIONAL MATHEMATICS

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE3171	Pre-Calculus I	3
INGL3101	Basic English I	3
INGL3113	Basic English I Laboratory	
ESPA3101	Basic Spanish I	3
CISO3121	Introduction to Social Sciences I	3
CCOM3001	Computer Programming I	3
Total		15

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE3172	Calculus I	3
INGL3102	Basic English II	3
INGL3114	Basic English II Laboratory	
ESPA3102	Basic Spanish II	3
CISO3122	Introduction to Social Sciences II	3
CCOM3002	Computer Programming II	3
Total		15

SECOND YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE3031	Calculus I	4
MATE3175	Discrete Mathematics	3
HUMA3101	Western Culture I	3
ESPA3201	Introduction a Generos Literarios	3
INGL3201	Grammar Composition & Reading I	3
FISI3011	University Physics I	3
FISI3013	Lab. University Physics I	1
Total		20

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE3032	Calculus II	4
CCOM4005	Data Structure & Algorithmic Analysis	3
HUMA3102	Western Culture II	3
ESPA3202	Introd. a Generos Literarios II	3
INGL3202	Grammar Composition & Reading II	3
FISI 3012	University Physics II	3
FISI3014	Lab University Physics II	1
Total		20

MATHEMATICS: COMPUTING SCIENCES

FIRST YEAR

FIRST SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3005 ^{*74}	Pre-Calculus	5
QUIM 3001	General Chemistry I	4
QUIM 3003	General Chemistry I Laboratory	0
INGL 3___*	First year in English Course	3
BIOL 3011	General Biology I	4
BIOL 3013	General Biology I Laboratory	0
ESPA 3101*	Basic Spanish I	3
Total		19

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3031	Calculus I	4
QUIM 3002	General Chemistry II	4
QUIM 3004	General Chemistry II Laboratory	0
INGL 3___*	First year in English Course	3
BIOL 3012	General Biology II	4
BIOL 3014	General Biology II Laboratory	0
EDFI	Free Elective	1
ESPA 3102*	Basic Spanish II	3
Total		19

⁷⁴ * Depending on the student's College Board and SAT scores.

SECOND YEAR**FIRST SEMESTER**

CODE	DESCRIPTION	CREDITS
MATE 3032	Calculus II	4
MATE 3020	Mathematical Foundations	3
ENGL 3__	Second Year English Course	3
CCOM 3010	Introduction to Computer Programming I	3
ESPA 3__	Second Year Spanish Course	3
EDFI ____	Elective in Physical Education	1
Total		17

SECOND SEMESTER

CODE	DESCRIPTION	CREDITS
MATE 3063	Calculus III	3
ESPA 3__	Second Year Spanish Course	3
INGL 3__	Second Year English Course	3
COMP3110	Introduction to Computer Programming II	3
MATE 4031	Linear Algebra	3
ELECTIVE	Free Elective	3
Total		17

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