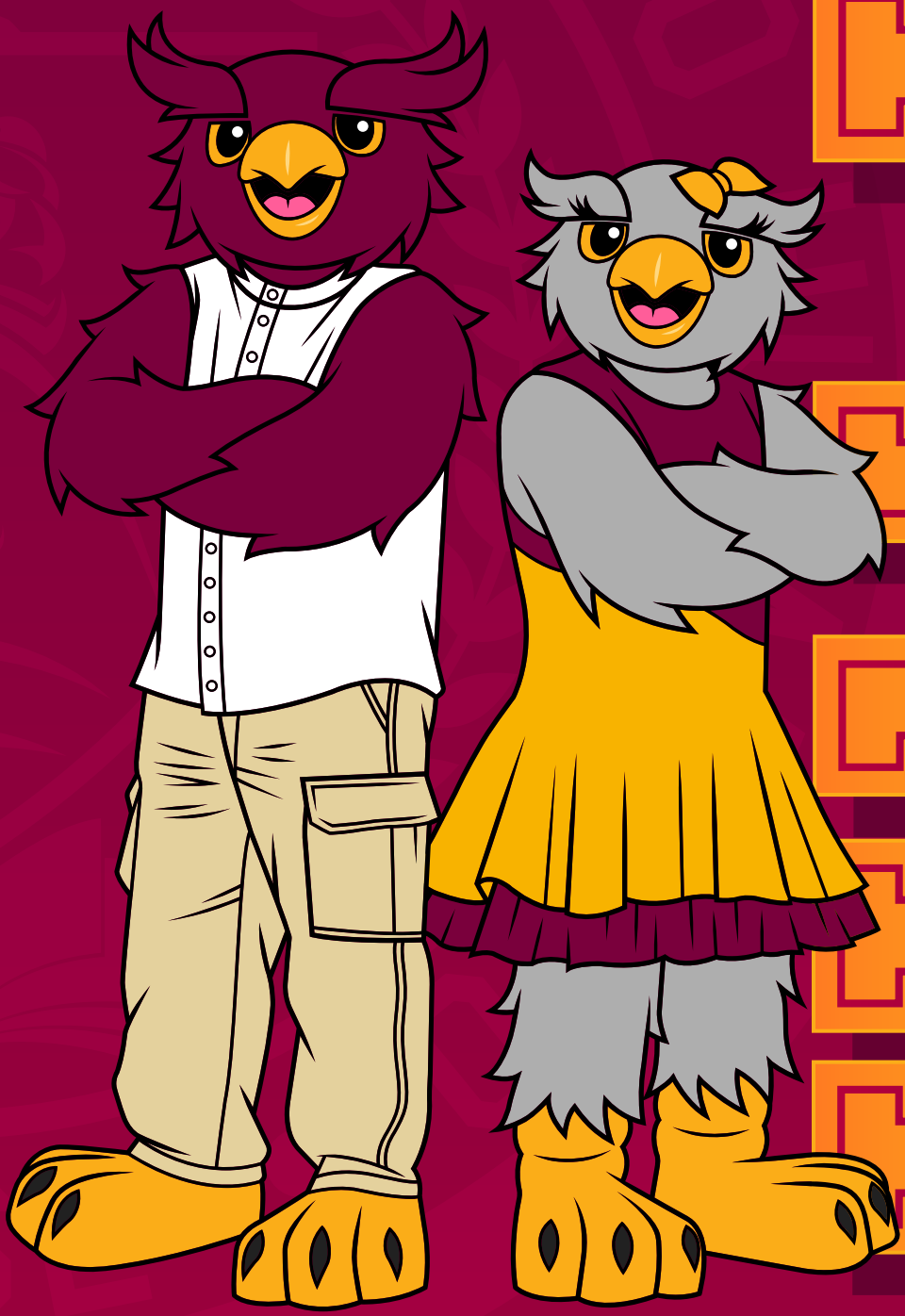
UNIVERSIDAD DE PUERTO RICO HUMACAO • 1962 •

CATALOG

2025 - 2026



UPRH

2025-2026 UPRH Catalog

English Version

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Published by the Deanship of Academic Affairs

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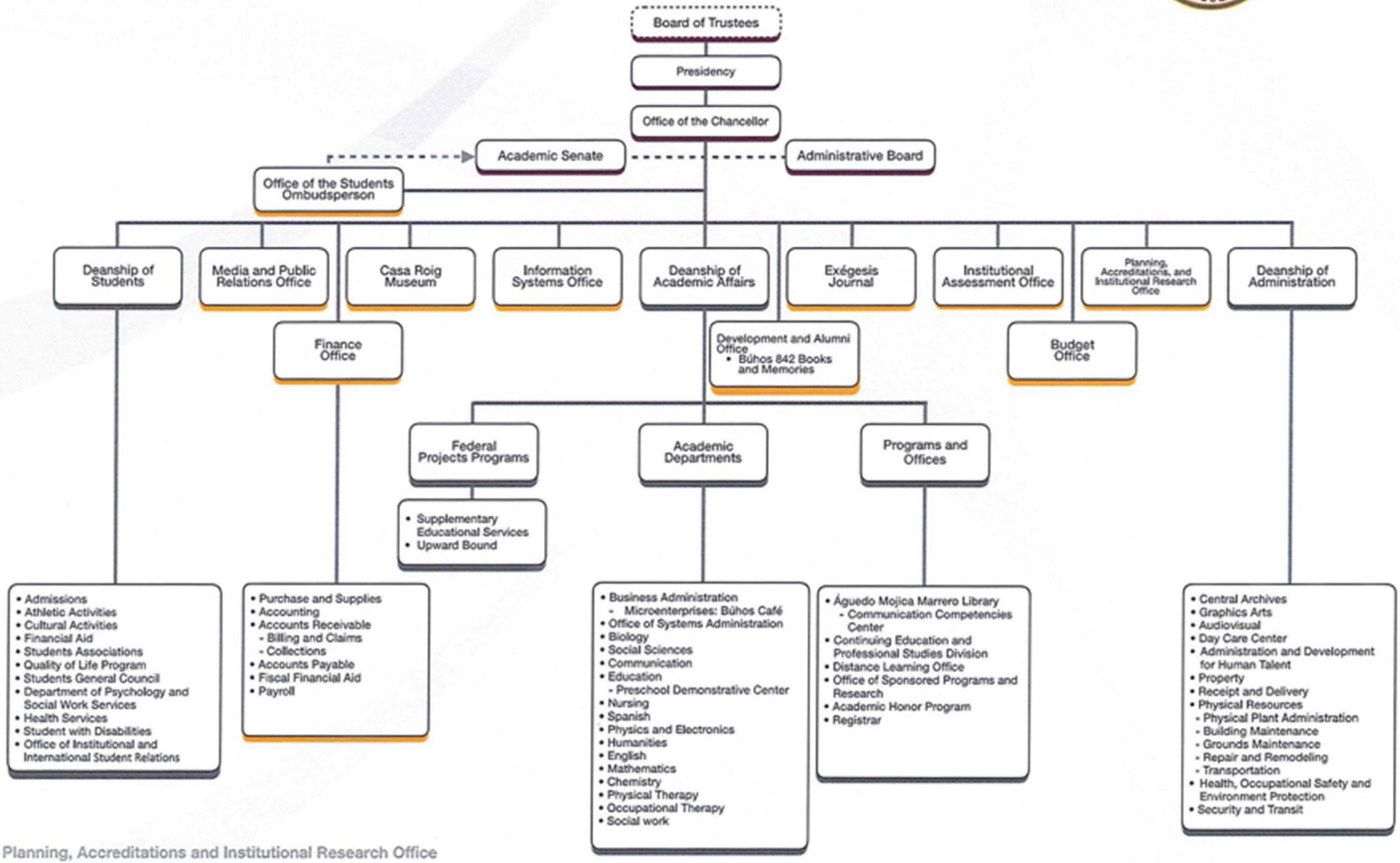

Planning, Accreditations and Institutional Research Office
Planning Area and Budget Office
Revision: March 17, 2025
Design and collaboration: Dr. Ernesto Soto

[Approved by the Administrative Board on Thursday, April 3, 2025, as stated in Certification Number 2024-2025-035.]

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Vacant
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Mr. Luis R. Mercado Soto
Security and Transit

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Services for Students with Disabilities

Mr. José M. Moreira Barreto
Information Systems (OSI, by its Spanish acronym)

ORGANIZATION

History

The University of Puerto Rico at Humacao (UPRH) was founded in 1962 as the first Regional College of the University of Puerto Rico. Its initial objective consisted of providing students from the eastern region of the country access to the University of Puerto Rico (UPR) and to facilitate the transfer of its alumni to other UPR units with higher levels of academic offerings. During the first year of operations, a faculty of 21 professors served 267 students. In 1963, the Division of Continuing Education and Extension began offering evening and summer courses. In 1965, the Middle States Association of Colleges and Secondary Schools granted the then Regional College its first accreditation, retroactive to 1962. The UPRH maintains its accreditation by the MSCHE validating its academic excellence through its reaccreditation in June 2022, which extends to 2029-2030.

In 1967, the College established associate degrees in Business Administration (Accounting and Management), Nursing, and Secretarial Sciences. In 1969, associate degrees in Physical Therapy and Occupational Therapy were established, followed by Audiovisual Communication in 1971 and Physical Education and Recreation in 1972.

By 1973, the Puerto Rico Legislature approved the Joint Resolution No. 95, which renamed the Humacao Regional College to the Humacao University College (CUH, by its Spanish acronym). For administrative purposes, CUH was attached to the Office of the President of the University of Puerto Rico and planning for the offerings of four-year programs leading to Bachelor of Arts and Bachelor of Science degrees started. The following bachelor's and associate degree programs were established between 1973 and 1982: Chemical Technology (1975), Nursing (1976), English (1976), Social Work (1976), Education (1978), Electronics Technology (1979), Physics Applied to Electronics (1980), Business Administration with a Major in Industrial Management (1979), General Program (1979), Human Resources (1979), Accounting (1982), Secretarial Sciences (1982), Marine Biology (1982), Industrial Chemistry (1977) and Computational Mathematics (1982).

In 1982, the Council on Higher Education granted the College its autonomy, which permitted the designation of its first chancellor. Also, tasks that had been previously carried out by the University of Puerto Rico Central Administration, were transferred to the CUH's directive bodies. In 1987, bachelor degrees were established in General Biology, Microbiology, and Wildlife Management. In 1999, the former UPR Board of Trustees authorized the change of the institution's name, from Humacao University College to the University of Puerto Rico at Humacao (UPRH).

At present, the UPRH offers 21 bachelor degree programs and 4 associate degree programs. The programs susceptible of professional accreditation, as Social Work, Nursing, Accounting, Management, Human Resources, International Commerce, Electronics Technology and Nanotechnology, and Communication Tecnologies have their professional accreditation agencies, respectively. In 2003, the institution established the Bachelor in Business Administration with major in International Commerce, a unique program at the bachelor's degree level within the University of Puerto Rico System, and the totally online program was created in 2021. In 2007, the Bachelor in Social Sciences with a Major in Social Action Research was offered; in 2013, the UPRH established the Bachelor in Arts with Major in Communication Technology; in 2018, the Bachelor in Arts with Major in Puerto Rico and the Caribbean Studies; and in 2022, the Bachelor in Science in Data Science. In 2024, the online Bachelor in Elementary Education with a major in Primary Level and Special Education was approved.

Mission

The University of Puerto Rico at Humacao, centered in the student success: Promotes academic excellence, innovation, and service regarding diversity, equity and inclusion in forming professionals who contribute to the social, economic, and cultural development of the eastern area, Puerto Rico, and the Caribbean.

Vision

The University of Puerto Rico at Humacao aims to be a higher education center that provides services to non-traditional populations on different modalities that will broaden its local and international projection.

Goals

GOAL A Innovate the academic offering in various modalities to enhance the holistic development of the student.

GOAL B Expand educational programs, services, and community projects through strategic alliances that promote the development of the external community and the fiscal sustainability of the institution

GOAL C Promote the optimization of institutional operations through best administrative and process reengineering practices that drive an agile service

Philosophy

Values of the University of Puerto Rico

The purpose of the University of Puerto Rico Law No. 1 of January 20, 1966 as amended, is to reorganize the

University of Puerto Rico, reaffirm and strengthen its autonomy, and facilitate its continuous growth.

The University, as an entity of higher education, for its obligation to provide services to the people of Puerto Rico, and for its due loyalty to the ideals of an integral democratic society, has the essential mission to reach the following objectives which are inherent to the most extensive academic freedom and scientific research:

1. Transmit and increase the knowledge by means of the sciences and arts, lending itself to the service of the community, through the actions of its professors, researchers, students, and alumni.
2. Contribute to the nurturing of ethical and aesthetic values of culture.
3. Ensure the full development of the student, considering his/her responsibility as a servant of the community.
4. Fully develop the latent intellectual and spiritual richness of our people, so that the values of intelligence and the spirit of exceptional personalities that arise in all social sectors, especially those less favored with economic resources, can be of service to the Puerto Rican society.
5. Collaborate with other entities, within their own spheres of action, in the study of the problems of Puerto Rico.
6. Bear in mind that, because of its character as a university and its identification with the ideals of life in Puerto Rico, the University is essentially tied to the values and interests of all democratic communities.

Values of the University of Puerto Rico at Humacao

Values are the statements about conceptions of what is desirable, with which the constituents of an institution are committed. They are the cornerstones or principles which guide institutional efforts. Our mission and vision gather the fundamental aspects of an education of excellence based on the following basic principles and premises:

- **Excellence:** Optimize the use of human capacity to meet and exceed performance expectations within academia and workplace, using professional and general education competencies that enable students to reach their full development.
- **Critique:** Promote independent thinking and participatory democracy through information processing models and the thinker's own criteria for emitting judgments that are based on logical, reasonable, and scientific foundations.
- **Universalism:** Create relations among individuals, communities, institutions, and movements across the globe to share knowledge, develop initiatives, generate alliances, and contribute to the solution of global problems, such as ecological instability and regional conflicts.
- **Respect for diversity:** Show deference and promote harmonious coexistence among groups of people with different traits, characteristics, and visions of life, not allowing discrimination for reasons of disabilities, gender, ideologies, beliefs, socioeconomic status, and place of origin, among others.
- **Resilience:** Organize resources that resist, adapt to, and overcome adversity or uncertainty that interfere with the achievement of the proposed objectives.
- **Civility**: Encourage habits and characteristics within citizens that help them responsibly assume personal and social obligations for the community benefit.
- **Honesty:** Encourage knowledge and criticism without losing perspective of one's limitations in acting with integrity and responsibility, and in recognizing that one can learn from peers in the process of searching for alternatives when confronting contemporary challenges.

Accreditation and Affiliations

Since 1962, the University of Puerto Rico has been accredited by the *Middle States Commission on Higher Education (MSCHE)*, 3624 Market Street, Philadelphia, PA 19104. Phone: (267) 284-5000.
https://www.msche.org/institution/0625/

Eight programs of associate and bachelor's degree are accredited by the following professional agencies: in the Bachelor in Sciences of Nursing - *Accreditation Commission for Education in Nursing (ACEN)* until 2027; the Bachelor in Social Work - *Council on Social Work Education (CSWE)* until 2032; the Bachelors in Business Administration, with a Major in International Commerce, with a Major in Industrial Management, with a Major Accounting, and with a Major in Human Resources - *Accreditation Council for Business Schools and Programs (ACBSP)* until 2033; the Associate Degree in Electronics Technology and Nanotechnology - *Accreditation Board for Engineering and Technology (ABET)* until 2027; and the Bachelor in Communication Technology - *Accrediting Council on Education Journalism and Mass Communication (ACEJMC)* until 2027.

Structure and Governance

Organization of the University of Puerto Rico

Currently, the University of Puerto Rico (UPR), as a system, is a well-established institution of higher education with an enrollment of over 43,000 students. It was reorganized under Law Number 1 approved on January 20, 1966. The University of Puerto Rico System is composed of the Río Piedras, Mayagüez, and Medical Sciences Campuses, which offer undergraduate and graduate studies, and the University of Puerto Rico at Humacao, Cayey, Bayamón, Carolina, Aguadilla, Arecibo, Ponce and Utuado, with two and four-year programs. The eleven units are autonomous; each has a chancellor as its principal administrative and academic officer.

Governing Board of the University of Puerto Rico

The Governing Board was created in 2013 as an independent and autonomous body that governs the 11 units of the University of Puerto Rico System. Prior to its creation, the former Council on Higher Education (CES, by its Spanish acronym) and the former Board of Trustees (JS, by its Spanish acronym) were responsible for UPR's governance.

The Governing Board governs the University, supervises the general operations of the institution, and provides guidelines for its development and direction. The Board does not get involved in administrative matters or in tasks pertinent to the presidency, chancellors, or other university officials.

The Board represents the public interest in the University, always ensuring its protection against political and partisan interests or any other interests which could undermine its autonomy against anti-intellectual tendencies which manifest themselves against academic freedom, the promotion of the critical conscience, and the full development of students' virtues.

The Board is composed of thirteen members: one regular bachelor student; one regular student from a graduate program; two professors holding tenure within the University System; the Secretary of Education with ex officio status; one professional with a broad knowledge and experience in the field of finances; one resident of Puerto Rico who has participated with distinction in social and community leadership; five residents of Puerto Rico distinguished in artistic, scientific, and professional areas; and one citizen, resident of Puerto Rico, with ties to Puerto Rican communities outside of Puerto Rico.

Except for the two students and the two professors that are elected, the remaining members of the Governing Board are appointed by the Governor of Puerto Rico with the advice and consent of the Puerto Rico Senate. All members of the Governing Board carry out their functions for the term established by University Law and until their successors are appointed and take possession.

President of the University of Puerto Rico

The President of the University of Puerto Rico, who is appointed for an indefinite term by the Governing Board, is the chief executive officer of the University System. With the approval of the Governing Board, he/she designates the chancellors of the system units. The President represents the University on corporate matters before the courts and government agencies. He/she is *ex officio* member of all faculties, academic senates, and administrative boards of the system.

The president is responsible to submit, for the consideration of the Governing Board, the following: the institutional budget; the institutional development plan and its revisions; regulations, contracts and agreements that require the Board's approval; and the annual report. He/she is also responsible for developing and maintaining relationships with other cultural and educational institutions in Puerto Rico, the United States, and internationally.

University Board

The University Board is responsible for preparing the general bylaws of the University, the student general bylaws, and the University System development plan which are submitted, for consideration and approval, to the President of the University and the Governing Board. The University Board also considers the System's consolidated budget and is the first course of appeal against any decision made by the Administrative Board or the Academic Senate of an autonomous unit. The University Board is composed of the President of the University, the chancellors of the 11 units, the finance director, three additional members appointed by the President with the approval of the Governing Board, a faculty representative from each academic senate, and a student representative from each unit. The Board, with recommendations from the academic senates, is responsible for preparing the bylaws.

Chancellor of the University of Puerto Rico at Humacao

The Chancellor of the University of Puerto Rico at Humacao is the chief executive officer of the institutional unit. His/her responsibilities include the following: presiding the Academic Senate, the Administrative Board, and the faculty meetings; appointing the deans, department directors, and university personnel; resolving on appeal, the deans' decisions; representing the University at functions, ceremonies, and academic activities; and preparing, for consideration of the President, the University's annual report and budget petition.

Administrative Board

The Administrative Board of the University of Puerto Rico at Humacao is composed of the Chancellor, who presides the Board, the deans, the Director of the Library, four academic department directors representing the areas of education, arts, sciences, and administrative sciences that are appointed by the Chancellor for a two-year term, two academic senators elected among the academic representatives of the Academic Senate who are not *ex officio* members, and an elected student representative.

Academic Senate

The Academic Senate of the University of Puerto Rico at Humacao is composed of the Chancellor, who presides it, the deans, the Director of the Library, an elected representative from each academic department, from the Library, from The Department of Counseling, Psychology and Social Work, four elected student

representatives, and the Student Ombudsperson as a permanent guest with the right of voice.

Faculty

The faculty is composed of the Chancellor, the Dean of Academic Affairs, the academic department directors, and the teaching staff of the University. The General Bylaws of the University of Puerto Rico define the faculty's functions, responsibilities, duties, and rights.

Students General Council

The Students General Council is the only group recognized by the college entities as the students' official representation. It channels a democratic, extensive, unrestricted, and absolute participation of all students.

Vision

Accomplish full students' representation before the University's administration bodies, always overlooking for a first-class education and the best opportunities for the students. It is our primary duty the formation of student leaders.

Mission

Officially represent the students of the University of Puerto Rico at Humacao in all deliberative forums, within the Council or out. Promote an environment that stimulates creativeness and that awakes the interest to collaborate in the solution of the problems of UPRH students. Expose, before the necessary authorities, the opinions and recommendations regarding the problems affecting students and the proper functioning of the University. Create conscience among students of their rights, duties, and responsibilities to guarantee the full enjoyment of university life. Strengthen communication between students and all sectors that compose the campus community. Encourage the collaboration and the communication of the student bodies on the study of problems that affect the university life and in the search of solutions to these problems. Foment university acts that stimulate the best student development.

Services offered:

- UPRH's student representation before the administrative, faculty, non-teaching staff, media, and national forums
- Counseling
- Facilitation of student dialogs
- Among others

Governing Board 2025-2026:

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Paola Krystal Hernández Márquez, Alternate University Board Representative,
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E-mail address: cge.humacao@upr.edu

Student Ombudsperson's Office

The Student Ombudsperson's Office of the University of Puerto Rico is a neutral, independent, and confidential entity created to safeguard fairness and justice in university life. Its main function is to address and channel situations that affect the student body, providing agile and informal mechanisms for conflict resolution such as mediation, negotiation, and intercession. In addition to advising and mediating between the parties, the Ombudsperson has the authority to recommend regulatory and structural changes that promote fair and respectful university coexistence. Likewise, the Ombudsperson is responsible for informing the university administration of regulatory instances that have hindered students' academic progress and performance. The services of this office are governed by the principles of accessibility, neutrality, confidentiality, and independence, in accordance with **Certification No. 119 (2014–2015) of the UPR Board of Governors**, which grants institutional legitimacy to its work and ensures the protection of student rights in their interactions with university authorities and officials. The office email is procuradoria.uprh@upr.edu. Phone: 787-850-9323

Telephones of the UPR Units

UPR - Aguadilla	(787) 890-2681
UPR - Arecibo	(787) 878-6778
UPR - Bayamón	(787) 993-0000
UPR - Carolina	(787) 257-0000
UPR - Cayey	(787) 738-2162
UPR - Medical Sciences	(787) 758-2525
UPR - Humacao	(787) 850-0000
UPR - Mayagüez	(787) 832-4040
UPR - Ponce	(787) 844-8181
UPR - Río Piedras	(787) 764-0000
UPR - Utuado	(787) 894-2828

INSTITUTIONAL POLICIES

Equal Opportunities Policy

The University of Puerto Rico (UPR) System, in compliance with applicable federal and state laws[1] and forthcoming regulations, is committed to provide equal opportunity access in education and employment without discriminating based on age, sex, sexual orientation, color, nationality, origin, social condition, political ideas, religious beliefs, physical or mental disabilities, or veteran status. The Equal Employment Opportunity Office (EEO) is the office appointed by the UPR to ensure compliance with legislation that applies to civil rights.

Student's Rights and Responsibilities

Law and academic tradition recognize the rights of the students as members of the campus community, as well as the moral and intellectual responsibility accompanying these rights. Law and tradition also recognize the responsible participation of students in assuring and maintaining order, safety, and normalcy in academic life. The work itself of studying constitutes the focal point in the student–professor relationship. The professor will encourage creative dialogue and freedom of expression. A student's grades will be based on an evaluation of his/her academic achievement. The student will have the right to meet with the professor during designated hours to request orientation and clarify aspects of his/her academic work. These rights and responsibilities, applicable disciplinary procedures in case of violations, and many other matters of interest are included in the *University of Puerto Rico Student General Bylaws,* which is available in the Deanship of Students Affairs.

Confidentiality of Academic Records Policy

The University of Puerto Rico at Humacao complies with the clauses of the Family Educational Rights and Privacy Act of 1974, as amended. It establishes the following precepts:

- The student has the right to inspect and review his/her academic record.
- The student has the right to have his/her academic record amended to correct inaccurate data that may be interpreted incorrectly or that violates his or her right to privacy, or any other right recognized by law.
- The student must give prior consent before personal information in his/her academic record is disclosed, except in circumstances where the law authorizes its disclosure without prior consent.
- The student has the right to file a complaint for possible non-compliance of the law at the University of Puerto Rico, directly, if so desired, before *The Family Educational Rights and Privacy Act Office, US Department of Health, Education and Welfare, 330 Independence Ave. SW, Washington, DC 20201.*

A copy of the institutional policy established by the University of Puerto Rico in compliance with the law may be obtained in the Registrar's Office.

Protection of Human Subjects Used in Research Policy

This institution complies with all federal regulations related to the use of human subjects in research, including those specified in the Code of Federal Regulations, Department of Health and Human Services, Title 45 (Public Welfare), Part 46: Protection of Human Subjects (revised on June 23, 2005).

Intellectual and Scientific Integrity Policy

It is the policy of this institution to observe the highest standards of intellectual and scientific integrity and to take the appropriate action in case of any violation. Lack of integrity and acts of academic and scientific fraud include plagiarism, falsifications, false representation, and all of the violations to the canons and practices generally accepted in the academic community, with the exception of those that may result from involuntary errors or genuine differences in the interpretation or handling of data or information.

Sexual Harassment Policy

Sexual harassment constitutes a violation of several laws[2] because it is considered discrimination. Consists of any type of unsolicited sexual approaches, requests for sexual favors, and any other verbal or physical sexual conduct. To determine if the alleged conduct constitutes sexual harassment, the totality of the circumstances will be considered. Examples of this conduct can be flirtatious remarks, sexual innuendos, unwanted sexual looks, squeezing, sexual aggressions, and the creation of an intimidating, hostile, and offensive environment, among others.

The person who has been or is sexually harassed may request help from the following university officials:

- Administrative unit supervisors
- Labor union representatives or delegates
- Academic department directors

[1] The Constitution of the Commonwealth of Puerto Rico, Article II Bill of Rights of the Civil Rights Law of 1964; Title IX of the Educational Amendments of 1972, prohibits discrimination based on gender in any entity receiving federal financial aid; The Rehabilitation Law of 1973 sections 503 and 504, as amended; Veteran's Act of 1974, section 402 as amended; Americans with Disabilities Act (ADA) of 1992.

[2] The Constitution of the Commonwealth of Puerto Rico. Article II, Section I: Law No. 1000 of June 30, 1959 prohibits job discrimination; Law No. 69l of July 6, 1985 prohibits discrimination on the basis of sex; Law No. 5 of October 15, 1975 prohibits job discrimination in the public sector; Title VII of the Federal Law of Civil Rights, 1964 and Law No. 4 of January 4, 1998, prohibit sexual harassment in educational institutions.

- Title IX Coordination
- Deans
- Student Ombudsperson
- Office of Administration and Development of Human Talent
- Legal Advisor
- Equal Employment Opportunity Office

**See Policy and Procedures for the Management of Situations of Discrimination by Sex or Gender at the University of Puerto Rico (Certification 107 2021-2022 of the UPR Governing Board).*

No-smoking Policy

The UPR, in compliance with Law #40, prohibits students, professors, employees, and visitors from smoking in indoor settings such as classrooms, conference rooms, laboratories, museums, libraries, hallways, cafeterias, and restrooms. Those who wish to smoke must do so in areas outside the buildings such as parking areas, balconies, or outdoor terraces.

If a person violates these prohibitions, he/she is subject to the corresponding disciplinary measures specified in the *UPR General Bylaws,* Article 39 (for employees), in the *Students' General Bylaws,* Part IV (for students) and in any other administrative procedure established for this purpose.

Drugs and Alcohol Policy

The manufacture, distribution, supply, possession, and illegal use of controlled substances, as well as alcohol abuse, are harmful practices to the Institution's best interests and will not be allowed regardless of the position of the persons involved. Under no circumstances will any person be allowed to violate this prohibition or to remain at his/her place of work or study while under the influence of any controlled substance or alcohol. This policy is supported in compliance with the following dispositions:

- University of Puerto Rico Act (Public Law No 1 of January 20, 1966)
- Drug Free Schools and Communities Act (Public Law No. 101-226 of 1989)
- Internal Regulations of the U. S. Department of Defense

These laws establish affirmative responsibility on behalf of educational institutions and employers in the prevention of the use of controlled substances by employees and students within the UPR grounds, as well during activities sponsored by the Institution.

Campus Security Act

State and federal laws require that educational institutions provide protection and security for members of the academic community. The UPRH recognizes as an Institution's legitimate interest to facilitate protection of life and safety of its members (administration, employees, and students). The UPRH is also concerned with preventing crimes within the physical facilities of its educational system.

This declaration of public policy is disseminated in accordance with Public Law 101-542 known as Student Right to Know and Campus Security Act*,* as well as with other federal and state laws that require the adoption of clear institutional norms.

Any person that, through acts of commission or omission, violates any state or federal statute will be subject to disciplinary measures established by the university bylaws or applicable civil or criminal laws.

The University of Puerto Rico at Humacao will prepare and disclose annually a report containing data related to procedures, security policy, emergency phone numbers, and statistics related to criminal acts committed within the university grounds.

Persons interested in obtaining a copy of the report may request one at the Deanship of Students Affairs or in the Office of Administration and Development of Human Talent.

Policies and Procedures for Handling Situations of Domestic Violence, Sexual Assault and Stalking

The UPRH is compromised with the formation and maintenance of a community in which the individuals that participate in university activities and programs can work and enjoy them in an environment free of domestic violence, sexual assault, and stalking. This Institution does not tolerate those conducts leading to these practices, prohibited by the university policies, occur between persons of opposite or same sex, between students, between faculty members or personnel.

The UPRH recognizes the importance of guaranteeing an environment in which the security, dignity and the autonomy of every person that interact in our community, students, teaching and non-teaching staff, subcontracted personnel and visitors, are respected.

The UPRH is compromised on taking the adequate action to prevent, correct and discipline any behavior that constitutes a violation of the university policies and procedures. In this, special attention will be given to the needs of the individuals that survive the violence, the offender rights will be guaranteed, as well as the confidentiality principles which are aimed to protect the intimacy and dignity of the people involved. (Taken from Certification No. 2012-2013-38 of the UPRH's Administrative Board)

Emergency Operational Plan

The UPRH has an organized procedure that permits it to make a fast and effective response to any emergency. This plan is aimed to mitigate the effects and damages caused by mankind or by natural disasters; to prepare the necessary measures to save lives and prevent damages; to respond before, during, and after the emergencies;

and to establish a system that allows recovery in a reasonable period of time. (Taken from Certification No. 2018-2019-034 of the UPRH's Administrative Board)

Complementary Standards and Procedures of the UPR for Extended Admission of New Students

Establishes the standards and procedures to implement Law 250 of 2012 in the University of Puerto Rico about extended admission for students with disabilities, coming from public or private high schools, who apply for new admission to one of the University of Puerto Rico's institutional units. (Certification No. 111 (2014-2015) Governing Board)

Policy of Reasonable Adjustment and Academic Services for Students with Disabilities Enrolled in the University of Puerto Rico

Establishes uniform practices in the UPR system on the coordination of reasonable adjustments and academic services requested by students with disabilities, as well as guaranteeing full compliance of the applicable federal and state laws. (Certification No. 133 (2015-2016) Governing Board)

Media and Public Relations Office

The Media and Public Relations Office gives support to the University of Puerto Rico at Humacao in the planning, managing, coordination, and evaluation of actions and strategies aimed to project the Institution's image through media and public relations activities.

Mission

Broadcast communications and institutional events to promote the image and services of the University of Puerto Rico at Humacao to both internal and external public.

Vision

Transform the Media and Public Relations Office of the University of Puerto Rico at Humacao in a unit with exposure within the Institution and that manages the processes of broadcasting in an integrated way, more efficiently and effectively. These processes are for the internal and external community benefit, in order to achieve a better projection of the work and other academic matters in the UPRH relevant to the country.

Objectives

- Create a favorable image of the Institution toward the internal and external community.
- Facilitate and accelerate the adoption and implementation of the newly established trademark guides for the University of Puerto Rico at Humacao.
- Standardize the flow of information related to the broadcast and promotion of matters concerning the University of Puerto Rico at Humacao.
- Establish an efficient, cost effective and ethical Communication Plan that complies with the Institutional Plan.

Information Systems Office (OSI, by its Spanish acronym)

Mission

Guarantee an efficient service, of quality on telecommunications, giving access to educational resources, general information and academic research offered in the Internet and through connections with other college institutions. Also, provide the administrative and safe means for the processes that give support and maintenance to the Institution.

Vision

Open doors to knowledge and general information in the University of Puerto Rico at Humacao through the emerging communication technologies.

Objectives

- Articulate an operational plan and a continuous assessment plan for the development of information technologies.
- Use new strategies that temper out and support the academic objectives.
- Provide connectivity that will allow access to the Internet and UPR System's network from all areas within the campus system.
- Use information technologies to automate, simplify and integrate the academic and administrative procedures, and to facilitate the management analysis.
- Stay ahead on information technologies and integrate them into the teaching-learning process through the acquisition and continuing renewal of equipment and resources.

Website: http://www.upr.edu/humacao/oficina-de-sistemas-de-informacion/
Phone: 787-850-9312

Planning, Accreditations, and Institutional Research Office (OPAI, by its Spanish acronym)

The Office of Planning, Accreditation, and Institutional Research (OPAIR) has the mission of advising the Chancellor in the development of institutional policies and in the design of strategies and activities that support the decision-making process. The office's functions are carried out through three programmatic areas: Planning, Accreditation and Licensing, and Institutional Research.
The functions of the Planning Area are framed around: identifying institutional priorities related to the planning process; evaluating the implementation of the Planning and Assessment Cycle to demonstrate institutional effectiveness; disseminating information and evaluations of the planning process and its outcomes; and facilitating alignment between the budget and institutional planning. Within the Accreditation and Licensing Area, the following functions are carried out: collaborating in the institutional reaccreditation processes by the Middle States Commission on Higher Education (MSCHE); collaborating in the licensing processes conducted by the Board of Postsecondary Institutions (JIP); and providing support to academic programs in their professional accreditation and reaccreditation processes, among others. On the other hand, the functions of the Institutional Research Area include: developing the components of the Student Follow-Up Study, in all its stages; developing the necessary instruments and analyses of academic, research, service, and administrative functions that provide the necessary information for planning, assessment, and systematic evaluation; presenting and discussing the findings, conclusions, and recommendations derived from institutional studies; disseminating institutional studies within the university community; and establishing a

continuous and systematic system for data collection, analysis, and information dissemination to support academic and administrative decision-making. The administrative component provides support in aspects such as electronic systems programming analysis, office systems management, and the organization of administrative matters related to the areas assigned to the OPAI.
Website: https://www.upr.edu/humacao/opaii/
Phone: 787-850-9341
e-mail: opai.uprh@upr.edu

Institutional Assessment Office (OAI, by its Spanish acronym)

The mission of the Institutional Assessment Office is to advise, give technical support, compile evidence, and disclose to the campus community the development of assessment initiatives on all aspects of the university operations. The OAI is ascribed to the Chancellor's Office.
Objectives:

1. Evaluate in a continuous way the assessment process in the University of Puerto Rico at Humacao (UPRH) to guide efforts of constant improvement of the Institution and of student success.
2. Offer activities to educate the institution personnel about assessment techniques, methods, and strategies on all levels.
3. Support assessment activities at classrooms, programs, departments, student services, and administrative offices in the UPRH.
4. Standardize, simplify, and expedite the assessment documentation.
5. Provide information to the university community through assessment activities, studies, and publications that include bulletins of assessment and the commemoration of the Assessment Biannual Forum of Learning and Institutional Effectiveness.
6. Maintain a diverse and updated assessment resources bank accessible and available to the campus community.
7. Promote collaborative work, the exchange of strategies and of information on central topics of assessment among the UPRH campus community, the UPR system units, and local and international higher education institutions.

The Institutional Assessment Office is composed of a director. This office works in direct collaboration with several institutional committees:

- Institutional Assessment Committee (CAI, by its Spanish acronym)
- Services Assessment Committee (CAS, by its Spanish acronym)
- Advising Committee for the General Education Component (Caceg, by its Spanish acronym)

Website: http://www.upr.edu/humacao/oficina-de-avaluacion-institucional_inicio/

Casa Roig Museum

In 1977, the University of Puerto Rico at Humacao received the home of Mr. Antonio Torruellas and Mrs. Eulogia Guzmán Toro as a donation. They were one of the most important families of the eastern area of Puerto Rico who worked on the production of sugar cane. The house is manufactured in concrete and wood, and richly decorated with stained glasses and mosaics as the Prairie House Style started in de United States in 1897 by the architects Louis Sullivan and Frank Lloyd Wright. It was designed in 1919 by the Czechoslovak architect Antonin Nechodoma (1877- 1928) as a home for the Roig Guzmán family.
It was totally restored and opened its doors to the public in 1989. Since, it has served as a museum and center of cultural dissemination. It is considered among the best works of the architect Antonin Nechodoma and the only residential structure of the prairie style adapted to the Puerto Rico's tropical environment. Also, the *Casa Roig* is the first residential structure of the 20th Century in Puerto Rico that was included in the National Register of Historic Places. At the moment, and because of Hurricane María, Casa Roig suffered damage and it is in a process of evaluation for its restauration.

Website: https://www.uprh.edu/museo-casa-roig-el-museo/
Phone: 787-852-8380

Exégesis Journal

Phone for the Office of the Chancellor: (787) 850-9374
e-mail: rect.uprh@upr.edu

ACADEMIC SERVICES

Deanship of Academic Affairs

The Deanship of Academic Affairs coordinates the academic activities of departments and programs, and of the Continuing Education and Professional Studies Division. It is responsible for providing support services to the faculty and for ensuring the strictest compliance of rules and regulations.
Website:
http://www.upr.edu/humacao/uprh/academicos/decanato-de-asuntos-academicos/
Phone: 787-850-9309 / 787-850-9303

Distance Education (EaD, by its Spanish acronym)

The Deanship of Academic Affairs offers courses in hybrid and online modalities through various academic programs. The Distance Education Policy (Certification 2017-2018-054, UPRH Academic Senate) and the Guide for the Implementation of the Distance Education Policy (Certification number 2020-2021-001; Certification number 2020-2021-065; UPRH Academic Senate) regulate the academic offering for the benefit of faculty and students. Currently, we provide a high-quality service with a multidisciplinary team for the entire campus community through the coordination of the Distance Education Office, which is part of the Deanship of Academic Affairs; the EaD Institutional Committee and the Continuing Education and Professional Studies Division (Decep), where the offering, administration and service of the online courses are managed.
Website: http://www.upr.edu/humacao/ead/
e-mail: ead.uprh@upr.edu

Águedo Mojica Marrero Library

The mission of the Águedo Mojica Marrero Library of the University of Puerto Rico at Humacao is to instruct the academic community in the critical handling of information and to encourage the integration of resources to the teaching-learning process in order to satisfy the community necessities in an effective and efficient way. It strives to capacitate the users, to develop collections with a multidisciplinary emphasis, pertinent to the UPRH academic curriculums, and even, be a source of information for the academic and external community. In addition to creating active collections, the library keeps more than 100,000 volumes in its book collection, 70,000 journal titles in both hardcopy and electronic, audiovisual and other electronic resources, such as books and databases. The library also has an IT infrastructure that facilitates the handling and distribution of information in a more efficient way. The integration of the IT infrastructure with the bibliographic infrastructure facilitates the creation of programs to develop the information competencies that complement the curriculum courses and the training of users in the handling of electronic resources applied to the academic work. Therefore, the library faculty integrates itself to the learning process, as a guide and facilitator of experiences to reinforce knowledge acquisition and the skills development.
The Library is in a three-story building that has 88,000 square feet. It has reading rooms, 69 desktop computers, 5 group study rooms, and 33 cubicles for individual study. The library has a maximum capacity of 222 users.
The service hours are from 8:00 a.m. to 4:30 p.m., Monday to Friday. The Library's public service area includes the main Circulating collection, located on the second floor. Within this area, there are five smaller collections: Reference, printed Reserve, printed magazines, Puerto Rican Collection, and audiovisual resources. In addition to the collections, the library offers the Assistive Technology Program, which provides bibliographic services to students with disabilities; the Information Literacy Program (PCI), which offers training in the use of databases; and the Communication Skills Center (CCC), which offers students training to improve oral, written, and technological communication in both English and Spanish. Additionally, tutoring is offered in biology, chemistry, and mathematics. The Luis Rafael Sánchez Special Collection and a large portion of the Puerto Rican Collection were affected by Hurricane María and have been stored in a repository since 2017, pending the completion of the Library's restoration. Currently, only the Circulating Collection and the smaller collections are available to users.
For technical processes the UPRH's Library uses the University of Puerto Rico automated system known as Horizon and is connected to the Internet through various means. This IT infrastructure facilitates the sharing within the UPR libraries and the sharing with other academic entities around the world. Furthermore, it stimulates and makes possible the exchange of resources to satisfy demands of information from its users.
The Library personnel is composed of one (1) professional librarian, four (4) auxiliary librarians, and 13 assistant students per semester. The professional librarian possesses faculty status. The Library personnel have published journal articles and monographs, including some that can be accessed through the Internet.

Website: http://www.upr.edu/biblioteca-uprh/
Phone: 787-850-0000, ext.9138

Communication Competencies Center (CCC)

History and Objectives

The CCC was established in the year 2002 as a subsidized project by the Federal Education Department (Tittle V) and institutionalized in 2007. It is located on the first

floor in SRIA Building of the Library. In 2018 the Center was included as a service unit of the Aguedo Mojica Marrero Library. The CCC mission is to support students and the university community in improving the quality of their written and oral work through individualized and group consultations, as well as by using modern technology, at any stage of the writing or oral communication process, in both English and Spanish. Both units have several objectives in common, such as: improve the quality of the students' work or academic tasks, include the use of technology in the learning process and develop a pleasant physical infrastructure that promotes research, and serve the campus community directly.

The CCC has an area of 18 computers with internet access and specialized programs, such as: Word, Excel, PowerPoint, and Publisher. Also, has a small collection of language arts books, in English and Spanish. It offers the use of its facilities for workshops and classes, depending on its availability and policies.

The CCC objectives are aimed towards the written, oral, and technological communication areas in English and Spanish. Since 2013, provides tutoring in science areas, such as: biology, chemistry, and mathematics. The tutors are students of academic excellence in those disciplines.

In addition, the CCC has a team of specialized counseling students that provide advice to the UPRH's students in the development of their communication skills, which are essential in academic and professional environments. These consultants work hand on hand with the students who seek support on drafting skills and in oral or written presentations, in electronic formats, and on reports.

Biannually, the CCC offers the academic community various workshops about communication skills and on the merging of technology in the academic environment.

Website: http://www.upr.edu/humacao/ccc/
Phone: 787-850-9463

Continuing Education and Professional Studies Division (Decep, by its Spanish acronym)

The Continuing Education and Professional Studies Division (Decep, by its Spanish acronym) of the University of Puerto Rico at Humacao reaffirms in its mission of providing programs and innovative academic activities of excellence, with or without credit, aimed to enable long term learning. Decep facilitates, guarantees, and perpetuates the University of Puerto Rico's service mission, its merging in the globalization trend of education, and its contribution to the socioeconomic and cultural development, focusing on the immediate needs of Puerto Rico's sectors and its surroundings areas.

Objectives

Continuing Education's objectives are the following:

- Create awareness in the UPRH's students, alumni, and citizens about the importance of continuous learning as an essential mechanism for the personal and professional development, which leads to procure an active participation on the country's social, cultural and economic development, enhancing the level of collective intellectual life.
- Provide an innovative, broad, dynamic, and flexible academic offer, with or without credit, which responds to educational necessities, of training and development of non-traditional students from the diverse sectors of Puerto Rico's community.
- Collaborate with academic departments and faculties in the offering of academic programs leading to certifications or degrees for non-traditional students.
- Provide continuing education activities regulated by the applicable laws to authorized practice of certain professions, in accordance with the requirements established by the examining boards and professional colleges.
- Establish alliances with public and private agencies and entities, locally, nationwide, or internationally, for the design and implementation of academic projects that respond to their expectations and priorities.
- Develop academic projects through consortiums, agreements among departments, faculties, and universities, in and outside the University of Puerto Rico System, and with public and private schools, locally and internationally.
- Diversify, enrich, and expand the academic offer of continuing education and professional studies by using several strategies, methodologies, and technologies, including methods of distance education in accordance with the University of Puerto Rico's new policies.
- Identify continuing education and professional studies necessities and demands in Puerto Rico and its surroundings, as well as other services related to Decep's mission and capacities, and propose and implement alternatives to address them.

The Division offers traditional courses, short courses, continuing education for health professionals who need to renew their license, college courses for talented students of public and private schools, reviews for the College Entrance Exam (PAA), capacitation to public providers, trainings and education for teachers of the Puerto Rico's Department of Education, and educational experiences for the community in general.

Post Bachelor's Degree Professional Certification in Bilingualism and Biliteracy in the Workplace (BBCL by its Spanish acronym)

Decep also offers a post bachelor's degree professional certification in *Bilingualism and Biliteracy in the Workplace* (BBCL). This certification is a series of courses with established educational activities designed to prepare future bilingual and biliterate professionals in English and Spanish languages. The educational experiences in this professional certification are career oriented.

The BBCL professional certification is designed to strengthen the linguistic competencies of bilingualism and biliteracy for workplace application. It prepares professionals to communicate, read, write, and interact effectively in both English and Spanish within professional contexts. The program enables participants to internalize, demonstrate, explain, and illustrate to others the concepts, similarities, and grammatical contrasts (phonological, morphological, and syntactic) of both languages. The goal is to prepare graduates to become successful, competitive professionals with a high level of proficiency in both languages.

The post bachelor' degree professional certification is awarded to students who complete 15 credits with a minimum GPA of 3.00.

BBCL Curricular Sequence:

Code	Curso	Crs.
INGL4235	Contrastive Analysis of English and Spanish	3
INGL3231	Advanced Composition I	3
INGL4345	Language and Culture	3
INGL4376	Multidisciplinary Bilingual Discourse Prerequisite: INGL4235	3
INGL4377	Bilingualism and Biliteracy Seminar Prerequisites: INGL4235, INGL3231, INGL4345, INGL4376	3

COURSE DESCRIPTION

INGL-4235. STRUCTURAL AND SYNTACTIC ANALYSIS OF ENGLISH AND SPANISH. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-4206, EDFU-3045. Corequisite(s): None. Comparative analysis of syntaxis, semantic, phonological, and lexical systems. Identification, overview and explanation of the nature and origin of different types of errors committed by students of English as a second language. Analysis of oral and written work samples.

INGL-3231. ADVANCED EXPOSITORY PROSE WRITING I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3221 and INGL- 3222. Corequisite(s): None. Intensive practice of the accepted patterns for prose exposition in order to master a clear and precise style. Analysis of prose verses.

INGL-4345. LANGUAGE AND CULTURE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDPE-3018 or EING-4006. Corequisite(s): None. This course is designed to explore the multifaceted relation between language and culture. Focuses of issues of cultural diversity that affect the acquisition of a second language in terms of ethnicity, race, genre, geography, socio economy, education, and age, among other factors. The course also examines the theoretical and conceptual aspects of multicultural education from a historical, philosophical, sociocultural, political, and pedagogical perspective.

INGL4376. MULTIDISCIPLINARY BILINGUAL DISCOURSE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL4235. Corequisite(s): None. This course offers a multidisciplinary, practical approach to oral communication in the fundamental principles of spoken language competencies and the effective delivery of discourse in both English and Spanish. With the goal of enhancing student's confidence in oral production of targeted languages within the workplace, this course provides innovative and collaborative instruction to refine student's professional speaking styles necessary for the bilingual and biliterate. This course is designed to be offered in-person modality.

INGL4377. BILINGUALISM AND BILITERACY SEMINAR. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL4235, INGL3231, INGL4345, INGL4376. Corequisite(s): None. This course is the capstone of the Bilingualism and Biliteracy Certification. Students will apply bilingual and biliteracy skills that will be assessed through different professionally oriented activities. Students will evidence high levels of academic performance using the following modes: hybrid through the Moodle platform and professional field experiences. Students will participate in classroom activities that will apply and enhance the concepts gleaned from texts and other resources. In addition, students are expected to complete learning modules, participate in online discussions, successfully accomplish assessments on a weekly basis, and actively participate in a professional field experience. This course is designed to be offered in-person modality.

The service hours for Decep are from Monday to Friday, 8:00 a.m. - 12:00 p.m. and 1:00 p.m. - 4:30 p.m.
Website: http://www.upr.edu/humacao/decep/
Phone: (787) 850-9376, (787) 850-0000 Ext. 9502, 9608, 9711, 9304.
e-mail: decep.uprh@upr.edu

University Articulation Project (PAU, by its Spanish acronym)

The University of Puerto Rico at Humacao, by Certification 1994-95-48 of the Academic Board, established the University Articulation Project to offer direct services to students of secondary schools of 11th

and 12th grade to take college courses. Is a requirement for the student to have a 3.50 academic average or more. PAU allows outstanding students from public and private high schools to take in advance university credits and enroll in the University of Puerto Rico at Humacao.

Office of Sponsored Research and Programs (OPIS, by its Spanish acronym)

The Office of Sponsored Research and Programs (OPIS, by its Spanish acronym) was created to "support research and creation through development and preparation of proposals, the management of projects, and the compliance and integrity in research", according to Certification Number 2013-2014-22 of the Academic Senate.

Mission

Support programs and projects of research, creation, service, and training on the different branches of knowledge, by requesting, collecting, and handling external funds; thus, ensuring compliance with the requirements and policies of the funding agencies.

Vision

OPIS seeks to develop and promote a university culture of research, innovation, service, and strategic alliances, for the benefit of our students and the general university community.

Objectives

Increase the number of proposals submitted to external agencies and provide training to the UPRH faculty to facilitate project management and the compliance with federal, state, and institutional regulations.

Website: https://www.upr.edu/humacao/opis-mision-y-vision/

Board for the Protection of Human Subjects in Research (JPSHI, by its Spanish acronym)

Mission

The mission of the Board for the Protection of Human Beings in Research (JPSHI), better known as the Institutional Review Board (IRB), is to ensure the protection, well-being, and rights of every human being who participates as a subject in research. To this end, it reviews, approves, and recommends changes to research protocols, ensuring voluntary participation, confidentiality, anonymity, and the reduction of physical, mental, and economic risks or harm. Additionally, the JPSHI will maintain an educational training process for the entire university community on ethical and regulatory aspects related to the protection of research subjects.

Vision

To promote a culture of compassionate, ethical research and study at the University of Puerto Rico in Humacao, in accordance with best practices for the protection of human beings, for the benefit of humanity.

Objectives

The IRB office reaffirms its commitment to:

- Promote a culture of ethical research practices.
- Ensure the protection of the rights and well-being of individuals who voluntarily participate in research projects at UPRH.
- Guarantee compliance with federal, state, and institutional regulations governing research involving human subjects.
- Serve as the body designated by the Chancellor to review, analyze, and approve (with modifications, if necessary) research involving human participants.

Through these actions, the Board seeks to safeguard confidentiality, anonymity, and the reduction of risks and harm to research participants.

Website: https://www.upr.edu/humacao/institutional-review-board-mision-y-vision/

Registrar's Office

The Registrar's Office is the custodian of students' academic records and manage the following processes or services:

- Transfer
- Reclassification
- Readmission
- Special Permit
- Graduation
- Registration
- Partial Withdraws
- Total Withdraws
- Studies and/or degree certifications
- Credit Transcripts

Veterans and other beneficiaries of federal programs

The UPRH is authorized to enroll veteran students and their beneficiaries as referred by federal and state agencies. These beneficiaries may comply with all admission and eligibility requirements and complete the study program in the stipulated time (Federal Code Tittle 38). If they exceed the stipulated time, they will not be able to continue receiving veteran's benefits. However, they may receive other available financial aid. Among the benefits offered by the Veterans' Administration are to establish coordination among veterans, the University and the Veterans' Administration Office, and to promote adequate relations among veterans and professors.

The Veterans' Administration will not cover a course where the veteran student, or his/her beneficiary, has obtained an acceptable grade. It will only pay for failed courses (F) or those with an established minimum grade.

Official Certification

I certify the current policy is true and correct:

The following individuals shall be charged a rate of tuition not to exceed the in-state rate for tuition and fees purposes:

- A Veteran using educational assistance under either chapter 30 (Montgomery GI Bill® -Active Duty Program) or chapter 33 (Post-9/11 GI Bill®), of title 38, United States Code, who lives in Puerto Rico while attending a school located in Puerto Rico (regardless of his/her formal State of residence) and enrolls in the school within three years of discharge or release from a period of active duty service of 90 days or more. **Effective August 1, 2021, Section 1005 of P.L.116-315 (Isakson and Roe Veterans Health Care and Benefits Improvement Act of 2020) eliminates the three-year requirement.**
- Anyone using transferred Post-9/11 GI Bill® benefits (38 U.S.C. § 3319) who lives in Puerto Rico while attending a school located in Puerto Rico (regardless of his/her formal State of residence) and enrolls in the school within three years of the transferor's discharge or release from a period of active duty service of 90 days or more. **Effective August 1, 2021, Section 1005 of P.L.116-315 (Isakson and Roe Veterans Health Care and Benefits Improvement Act of 2020) eliminates the three-year requirement.**
- Anyone described above who is still enrolled (other than during regularly scheduled breaks between courses, semesters, or terms) at the same school. The person so described must have enrolled in the school prior to the expiration of the three-year period following discharge or release as described above and must be using educational benefits under either chapter 30 or chapter 33, of title 38, United States Code. **Effective August 1, 2021, Section 1005 of P.L.116-315 (Isakson and Roe Veterans Health Care and Benefits Improvement Act of 2020) eliminates the three-year requirement.**
- Anyone using benefits under the Marine Gunnery Sergeant John David Fry Scholarship (38 U.S.C. § 3311(b)(9)) who lives in Puerto Rico while attending a school located in Puerto Rico (regardless of his/her formal State of residence).
- Anyone using transferred Post-9/11 GI Bill® benefits (38 U.S.C. § 3319) who lives in Puerto Rico while attending a school located in Puerto Rico (regardless of his/her formal state of residence) and the transferor is a member of the uniformed service who is serving on active duty.
- The policy shall be read to be amended as necessary to be compliant with the requirements of 38 U.S.C. 3679 as amended.

Section 103 of Public Law (PL) 115-407, 'Veterans Benefits and Transition Act of 2018,' amends Title 38 US Code 3679.

Section 103 of Public Law (PL) 115-407, 'Veterans Benefits and Transition Act of 2018,' amends Title 38 US Code 3679 by adding a new subsection (e) that requires disapproval of courses of education, beginning August 1, 2019, at any educational institution that does not have a policy in place that will allow an individual to attend or participate in a course of education, pending VA payment, providing the individual submits a certificate of eligibility for entitlement to educational assistance under Chapter 31 or 33.

The institution is approved by the Puerto Rico State Approving Agency to provide academic training to the students under the various GI Bill® programs.

GI Bill® is a registered trademark of the U.S. Department of Veterans Affairs (VA).
For more educational benefits offered by VA, go to https://www.benefits.va.gov/gibill.

Academic Honors Program

The objective of the Academic Honors Program is to provide talented students with non-traditional experiences in order to train them in the area of research and prepare them to pursue graduate studies. In the Program, students get involved in social, cultural, and academic activities, different from those traditionally offered, promoting independence, leadership, and collaborative work. It stimulates voluntary service which results in further student growth. It is a program for students that wish to make the most out of the university experiences and enrich their formation in an interdisciplinary environment. The Program enrolls students from all the UPRH academic programs.

The Academic Honors Program offers specialized services of academic counseling focusing on graduate studies and assists in the process of applying for financial aid and admission to graduate programs. The participant students can benefit of the program's study room, which is equipped with computers and other technological resources, library resources during extended hours; and early registration, among others. The Program is a member of the *University Association of Puerto Rico's Honors Programs* (AUPH, by its Spanish acronym).

Upward Bound Program

The Upward Bound Program Is a pre-university program financed with federal funds of the Federal Education Department and is ascribed to the University of Puerto Rico at Humacao. The Program is part of the project group known as TRIO, which exists by the Federal Law of Economic Opportunities and the Law of Higher Education of 1965.

It gives students the academic help needed to successfully finish their high school, begin, and complete

university studies. Aimed at first generation students who will complete bachelor studies and that have home economic need.

The main purpose is to provide academic tutoring during academic year and summer in areas of Spanish, English, Mathematics, Sciences, and Academic Orientation services designed to motivate and help participant students to successfully finish high school and pursue postsecondary studies.

Students of ninth to twelfth grade, enrolled in the following High Schools may participate: Petra Mercado Bougart, Ana Roque Duprey, and the Manuel Mediavilla Negrón Vocational in Humacao.

The admission requirements are:

- Parents or guardians should **not** have a bachelor's degree completed; be 1st generation.
- Come from a family with a limited income; as established in the Department of Federal Education table.
- Have interest in succeeding, continuing and graduate with post-secondary studies/college studies.
- Have an academic cumulative average of no less than 2.50 when applying.
- Applicants should be recommended by their teachers and/or the heads of their home schools.

Personnel

Prof. Myriam Cintrón Riera, *Director*
Glomir M. Pérez Flores, *Guidance Officer*
Lesley A. Ciriacruz Rosa, *Program Officer*

Website: http://www.upr.edu/humacao/programa-upward-bound/
Facebook:
www.facebook.com/programaupwardbound.uprh
Phone: 787-850-9302

ACADEMIC STANDARDS

Admissions

Candidates for first year admission in the University of Puerto Rico at Humacao must complete the Admission's Single Application to the University of Puerto Rico and request enrollment to one of the academic programs. Candidates must have a high school diploma, or its equivalent, from an educational institution duly accredited by the Puerto Rico Department of Education. They must also request that an official copy of their credit transcripts be sent to the Admission's Office.

Admission Requirements

According to Certification 50 (2024-2025) of the Governing Board, the University of Puerto Rico establishes the *Standards for Admission to the University of Puerto Rico for High School Students* as follows:

A. Admission criteria vary depending on the selected admission pathway. Meeting the requirements in each category does not guarantee automatic admission the University, as each academic program has a limited number of available seats.
   1. Traditional Admission:
      a. Applicants must have fulfilled the graduation requirements of a public or private high school that holds an operating license as required by the relevant jurisdiction, or must have passed the equivalency exam of the Puerto Rico Department of Education (DEPR). Equivalency is also granted to candidates who pass the GED (*General Educational Development Test*) offered by the U.S. Department of Education.
      b. For traditional admission purposes, an Admission Application Index (IGS) will be calculated based on the normalized and standardized values of the high school GPA and the scores from the reading/writing and mathematics sections of the entrance exam. The academic index will carry a weight of 60%, while exam results will contribute 40% (20% reading and writing, and 20% mathematics).
   2. Non-Traditional Admission:
      a. General Requirements:
         1) Students applying through this route are exempt from taking the entrance exam, as it is understood they possess qualities that can be assessed through alternate methods instead of standardized testing. However, they are not discouraged from taking the tests as the results may be used to demonstrate aptitude in specific academic areas. Additionally, the university may use these scores for placement in Spanish, Math, and English courses, at the discretion of the admitting campus. It's important to note that applicants applying under the non-traditional route through the talent or specialized school categories are not necessarily required to align their application with an academic program related to their talent.
         2) Typically, students must have a high school GPA of no less than 2.00. However, in exceptional cases, the admissions committee of the corresponding campus may evaluate, at the request of an academic program, applicants with a GPA below 2.00.
         3) Students applying through the non-traditional route must submit evidence in accordance with the requirements outlined in this certification for each non-traditional category at the time of completing the online application. These documents may be submitted electronically through the repository specified in the online application or delivered in person to the Admissions Office of the UPR campus to which the student is applying.
         4) Acceptable supporting evidence may include, but is not limited to: (See Appendix 3 – "Considerations for Submitting Evidence for Non-Traditional Admission" for more details.)
            a) Essays – (maximum of two pages),
            b) Electronic portfolio – a compilation of events or achievements that demonstrate qualifications for the selected category,
            c) Audiovisual material (maximum of 4 minutes),
            d) Letters of recommendation.
      b. Categories of students eligible under the non-traditional route include:
         1) Talented or exceptionally gifted student.
         2) Student from a specialized school.
         3) Student participating in a "*dual enrollment*" or university articulation program.
         4) Student from an economically disadvantaged background or marginalized community.
         5) Adult student, senior student, or retired adult.

6) Student with a disability or functional diversity.
7) "*First Responders*".

The admission requirements by category can be found in Certification 50 (2024–2025) of the Governing Board, starting on page 9.

Selection of Candidates

- Each UPR academic program establishes a Minimum Application Index (IMI, by its Spanish acronym)), which is the minimum required to be eligible for admission. Annually, the Administrative Board will certificate the admission index and the program's capacity.
- The selection of candidates will be made in descending order of the admission index and in accordance with the capacity of the different academic programs.

Requirements for Applicants from Foreign High Schools or their Equivalent

The Admissions Office determines the eligibility of the students coming from foreign countries and that wish to apply for admission at the University of Puerto Rico. They must take the College Board entrance exam and meet the following requirements:

- Request an official copy of the academic record in secondary education to be sent in the native language, and another in English or Spanish, duly certified by the home institution. These transcripts should be validated by the Ministry of Education at the home country and by the United States of America Consulate at the home country.
- Show evidence of titles or diplomas earned.
- Request an explanatory official report/summary to be sent, about:
  1. The grading system used to evaluate the academic achievement.
  2. The content and level of the courses taken.
  3. The number of hours per week each course was offered.
  4. Show evidence that the applicant has the necessary economic resources to study in Puerto Rico.
- When the applicant is from a private institution, he/she must present a certification indicating that the institution possesses the official recognition of the government from the home country.

Articulated Transfers

The UPRH has 8 programs articulated with three units of the UPR System: Mayagüez, Cayey and Carolina.

UPR Mayagüez
Bachelor in Sciences in:
Industrial Engineering
Mechanical Engineering
Chemical Engineering

UPR Cayey
Bachelor in Arts with a major in:
Psychology
Psychology and Mental Health

UPR Carolina
Bachelor in Artes in Social Sciences in Criminal Justice with a major in:
Forensic Psychology
Law and Society

Advanced Placement

Students who approve the College Board's advanced placement exams with a score of 3 or more in English or Math and 4 or 5 in Spanish may enroll in second year courses, as indicated in their curriculums, and will receive credit for the corresponding first year courses. These credits will count in order to fulfill the graduation requirements and will be registered in the student's academic record as approved (P).

Placement for Pre-Basic Courses by Area

Students admitted will be placed according to Certification Number 2017-2018-052 and Certification Number 2022-2023-064, of the Academic Senate.

- ***Mathematics:***
  - ✓ Students with a score of 604 or less in the mathematics section of the CEEB, admitted to the Natural Sciences bachelor programs, must take and approve the course **MATE0026.**
  - ✓ Students with a score of 564 or less in the mathematics section of the CEEB, admitted to the Business Management Faculty, Natural Sciences bachelor programs, must take and approve the course **MATE3001.**
- ***English:*** Students with a score of 440 or less in the English Achievement section of the CEEB, must take and approve the course **INGL0080.**
- ***Spanish:*** Students with a score of 494 or less in the Spanish Achievement section of the CEEB, must take and approve the course **ESPA3005.**

Internal Transfer

Students Transfer from Other Units of the University of Puerto Rico System

Students from other units of the University of Puerto Rico System can request transfer to the University of Puerto Rico at Humacao. They must meet the following requirements:

- Request transfer through the Registrar's Office of his/her unit of origin within the period indicated in the academic calendar.
- Less than 24 credits approved in the University of Puerto Rico:

- ✓ Must have satisfactory academic progress, as established by the Retention Tables indexes.
- ✓ Must have an application general index value (IGS) of new admission greater than or equal to the minimum established for the year that the student was admitted.

- More than 24 credits approved in the University of Puerto Rico:
  - ✓ Must have satisfactory academic progress, as established by the Retention Tables indexes.
  - ✓ Must comply with other criteria established by the program to which the student seeks to be admitted.

Qualifying students will be admitted in descending order of general average if there is space in the requested program.

Courses taken at other units of the System, and whose equivalence has been established in the System's Courses Equivalence Table, will be honored by the University of Puerto Rico at Humacao. The University reserves the right to accept other approved courses for graduation purposes.

Transfers

Students Transfer from Universities outside the University of Puerto Rico's System

Any student with studies at university level from an accredited institution outside of the University of Puerto Rico System will be considered as a transfer student applicant.

Information about admission by transfer will be obtained in the Admission's Office of the University of Puerto Rico at Humacao. Candidates should comply with the admission institutional requirements, as well as with the established requirements from the solicited academic program.

General Requirements

1. Submit the admission request form with all the required documents within the period established on the academic calendar.
2. Have approved a minimum of 12 credits for associate degree programs and 24 credits for bachelor's degree program with a minimum grade point average of 2.50 (on a scale of 0 to 4), as established in Certification Number 2024-2025-046 issued by the Academic Senate of the University of Puerto Rico at Humacao.
3. Comply with the specific requirements of the solicited academic program.

Credit Equivalency

The University of Puerto Rico at Humacao reserves the right to determine the number of credits and the courses to be validated for graduation on its programs. The validation of courses approved on institutions outside the University of Puerto Rico System will be made by recommendation of the department at the University of Puerto Rico at Humacao which offers instruction in the course subject for the consideration.

The University of Puerto Rico at Humacao does not compromise to accept validations made on other System units, universities, or private colleges. Only courses approved with a grade of "C" or more will be evaluated for validation. The University will not accept more than 50 percent of the course work in the major completed at another institution, unless by special approval of the Dean for Academic Affairs. Validated courses will be documented on the student's academic record but will not count for his/her academic average.

Readmission

Every student from the University of Puerto Rico at Humacao who has obtained an associate or bachelor's degree and who have been inactive during one semester or more, or that have been inactive during the semester with a total withdraw and wish to continue studies during the next semester, should request a readmission.

Applicants must submit their application for readmission at the Registrar's Office within the period stipulated in the academic calendar.

Reclassification

Students from the University of Puerto Rico at Humacao may request to be considered for continuing studies in an academic program different from the originally admitted. Applicants should comply with the following requirements:

1. Apply for reclassification at the Registrar's Office within the time established in the academic calendar of the corresponding semester.
2. Have approved at least 24 credits with the institution's retention index at the end of the semester on which the reclassification is requested.
3. Have no debts with the Institution.
4. Have not been reclassified more than three times.
5. Meet the specific requirements of the program to which the student wants to request for reclassification.
6. Show evidence of vaccination against Hepatitis B; for students of Nursing and Occupational Therapy Departments.
7. Less than 24 credits approved in the University of Puerto Rico:
   - ✓ Must have satisfactory academic progress, as established by the Retention Tables indexes.
   - ✓ Must have an application general index value (IGS) of new admission greater than or equal to the minimum established for the year that the student was admitted.

Student selection will be in order of the academic index and in accordance with the stipulated space for each

program. A student may be reclassified no more than three times.

Language of Instruction

Spanish is the language of instruction in most of the classes, but students should have a functional knowledge of English.

Registration

The Registrar is the custodian of the student's academic records and runs the registration process. Students should complete their registration within the period established in the academic calendar. No student should register after the third day of classes on a regular semester, or after the first day of classes during a summer session; except for special cases and with the authorization of the Chancellor from the University of Puerto Rico at Humacao.

New admission students must present a registration permit, evidence that they have met the requirements of the Medical Services Office and the Certificate of Admission signed and sealed by their high school's principal. Students should complete all admission's required forms in person. Each study program will be approved by the academic advisor, with the endorsement of the department's director and of the Registrar from the University of Puerto Rico at Humacao. Registration will be final and official when the student has paid all registration fees and other fees and deposits in the Collector's Office.

Students who do not complete the registration process during the established period will be withdrawn and must request readmission during the corresponding period set out in the academic calendar. Newly admitted students from high school who do not make official their enrollment, will need to submit readmission within the period indicated in the academic calendar, during a 3-year term beginning on the year admitted for the first time (Certification Num. 44-2015-2016, Governing Board). Admission of transferred students will be cancelled, and they will need to submit a new application to the University of Puerto Rico at Humacao for the corresponding semester.

Students may make changes in their academic programs before the payment of the registration fees. These changes must be approved by their department's director or department's academic advisor and by the Registrar. to make any changes.

Classification of Students

Students from the University of Puerto Rico at Humacao are classified in one of the following categories:

Regular Students: Those who have met the admission requirements to an academic program, candidates to a degree, diploma, or certificate, who have been accepted to the corresponding academic program and have a full-credit program with at least 12 credits per semester in an undergraduate program.

Irregular Students: Those who have met the admission requirements, candidates for a degree, diploma, or certificate, who have been accepted to the corresponding academic program and have less than 12 credits per semester in an undergraduate program.

Transient Students: Those who come from other universities or units of the University of Puerto Rico System and take courses during a specific academic session in order to receive credit and grade for them.

Auditing Students: Those who have not completed the admission requirements and who are not candidates for a degree, diploma, or certificate. Auditing students attend class with the authorization of the Department's Director or course professor. Then, the student will fill the forms for the appropriate authorization at the Registrar's Office to complete the registration as an auditing student and pay the corresponding fees. Students will not receive an official grade nor credit for the work completed in the courses attended. Also, they will not be submitted to any assessment to demonstrate their academic achievement in the courses.

Honor Students: Those students that, due to their outstanding academic grade point average, meet the eligibility requirements established by the Honor Program of the University of Puerto Rico at Humacao.

Academic Year

Regular Academic Year**:** The academic year consists of two semesters and the summer session. The first semester is from August to December and the second semester, from January to May. Semesters start and end according to the established dates on the academic calendar.

The academic program of a regular student will consist of the courses as they appear in the yearly study plan, which is previously approved by the pertinent authorities. The student may have up to eighteen (18) credits, which could increase or decrease with the authorization of the department's academic advisor or director.

Honor students, or those who are candidates for graduation for a specific semester, can have a maximum load of 21 credits as recommended by their academic advisor and with the approval of the department's director. Students from Occupational Therapy may have a maximum load of 20 credits per semester.

Summer Sessions: A student may take up to two courses or eight (8) credits per summer session, whichever is higher, in the University of Puerto Rico at Humacao, with a special permit, on another unit of the University of Puerto Rico or in a private university accredited by the Puerto Rico Education Council.

Courses taken by a student in the summer session will be authorized by the academic advisor, the student department's director, and the Registrar's Office.

Withdrawals

Partial Withdrawals: Students will have the right to withdraw from any course during the period established in the academic calendar, after notifying the professor and the academic advisor. The student will submit the application of partial withdrawal through the University Portal.

The student will not receive a grade nor credit for the work completed on any course from which is withdrawn. The Registrar will record in the student's academic record a "W" in each withdrawn course within the time limit established in the academic calendar.

Students are advised that federal regulations require that professors inform them of the last day on which the student attended class.

Total Withdrawals: A student has the right for a total withdrawal from the University of Puerto Rico at Humacao at any moment and until the last day of classes. He/She may obtain the authorization of the officials specified in the Total Withdrawal Request form. The student will submit this form in the institutional portal. Once the student completes this process, the Registrar will enter a "W" on all the courses that the student is enrolled in the semester.

Students are advised that federal regulations require that professors inform them of the last day on which the student attended class.

Grading System

Unit of Instruction: In general, one credit is equivalent to one lecture or discussion hour. One hour of academic work is equivalent to a 50-minutes period. One semester consists of at least fifteen (15) weeks of instruction, excluding final exams.

Grades: The grading system of the UPRH is the following: A, excellent (4); B, good (3); C, satisfactory (2); D, approved with deficiency (1); F, failed (0); P, passed; but excluded from the grade point average calculation; NP, not passed; I, incomplete; NR, grade not informed; W, authorized withdrawal; F*, stopped attending; NP*, stopped attending; W*, never attended; WP*, never attended.

Provisional Grades: A provisional grade or "Incomplete" may be assigned to a student with justified reasons, acceptable to the professor, when the student has not completed all the course requirements. An "F" grade or 0 may be assigned to the work part that the professor will consider for reposition and the corresponding provisional grade will be recorded. If the student completes the course requirements before the following semester ends, the professor will determine the new grade and will inform the change to the Registrar within the regulatory period. The final grade will never be lower than the provisional grade.

In case that the incomplete is assigned during the summer session, the professor will have until the deadline of the following semester to remove the provisional grades. If the student does not complete the course requirements within the established period, the provisional grade will be the final grade.

Repetition of Courses: Students may repeat, without restriction, courses where they have obtained a grade of D, F or NP. Only the higher grades will be considered for purposes of the academic and graduation index; but the lower grades will remain in the student's academic record. The Dean of Academic Affairs may authorize the repetition of courses with a grade of C.

Academic Index: The academic average is a measure of the student's academic achievement. It is computed dividing the total honor points by the total of cumulative credits in the courses from which the student has obtained grades, including those with incomplete or F. Points of honor will be assigned by credit per each grade, as follows: A, 4; B, 3; C, 2; D, 1; F, 0. Honor points will not be assigned for those courses approved with W, P o NP.

Grades obtained during the summer session will be included in the calculation of the academic index of the next academic year. Students under academic suspension are exempt from this rule. In this case, grades obtained during summer session will be considered for the calculation of the academic index of the current year. Students from the Physical Therapy Associate Degree, Occupational Therapy Associate Degree, Nursing Sciences Bachelor of Science Degree, Arts in Social Work Bachelor's Degree, Social Action Research Bachelor's Degree (INAS, by its Spanish acronym), and from Office System Administration Bachelor's Degree must obtain a minimum grade of C in order to approve the courses in the major.

Graduation Index: It is computed using the points of honor as described before but including only the courses and electives required in the study program from which the student will graduate.

Class Attendance and Exam

Class Attendance: Class attendance is mandatory. Professors must record students' absences and inform them to the Registrar when submitting the semester's final grade report. Absences can have a negative effect on the course final grade and may cause the complete loss of credits, as determined by the regulations of the UPR Humacao. *Justified reasons for absences and exams reposition will be considered when the student presents written evidence of the situations, such as: court summons, illness, pregnancy, and birth complications, when the student is officially representing the Institution or any other circumstance that the professor considers justified. Not attending classes may negatively affect the student's participation in the Financial Aid Programs. (*as amended by Certification Number 2001-02-80.)

Partial Exams: During the semester, the minimum of evaluations per course will be three (3). One of the evaluations will be before the eight week of classes. At the beginning of the course, the professor must inform the student of the evaluation criteria to be used.

Final Exams: Final exams can be written, or in case that the course nature and pedagogical strategies of the professor requires other type of exam, it will be at the professor's discretion to determine the nature of the final exam before it specification in the course syllabus.

Each professor will evaluate the work carried out by the student using the appropriate methods for the discipline being taught. All evidence used by the professor to calculate the students' grades should be available until the end of the following semester of the course taught.

The programmed date of the final exam will not be changed without the authorization of the department's director and of the Registrar.

Absence from Exams: Students have the responsibility to attend all exams. Those students who are absent from exams that where properly programmed, will receive a grade of "F" or cero on those exams. The professor could determine to give a make-up exam if the student shows a valid acceptable reason.

Academic Progress

As part of the requirements to participate in the Financial Aid Programs, is important that all students comply with the academic progress standards. Students must approve at least 24 credits per academic year in courses required in their curriculum. The Federal Pell Grant Program will pay only for the required courses and electives of the program on which the student is registered.

Retention Standards

Minimum General Requirements: A retention index is established according to the number of credits earned by the student (See Table I). All students that comply with the minimum academic index required at the end of each academic year may continue studies in the following semester.

Suspensions: Students that at the end of two consecutive semesters have an academic index lower than the corresponding retention index, will be notified in writing of their academic suspension if proceeds. This suspension will take effect in the semester following the one where the academic index of the student was lower than the corresponding retention index. When the cumulative index is lower than the necessary index to qualify for probation (See Table II), suspension will be automatic for the next academic semester. Suspension will be for 12 consecutive months.

Probation: When the cumulative index is lower than the retention index, but higher or equal to the necessary index to qualify for probation (See Table II), a probation period can be granted to the student.

Graduation Requirements

The University of Puerto Rico at Humacao reserves the right to make changes to the different programs and graduation requirements. The student has the right to graduate under the curriculum requirements that are effective at the moment of admission to the program. However, the student who does not meet the graduation requirements within the regular time assigned in the corresponding study program or who is readmitted after a period of absence, will graduate with the requirements applicable to the class on which is graduating and that were established at the moment of the admission. If curricular changes are made that benefit the student, they will be recognized in order to complete the graduation requirements.

To receive a degree, student should meet the following general requirements:

1. Be classified in the program from which the student request graduation at the time of completing the degree requirements.
2. Have a graduation index of at least 2.00.
3. Have approved the core courses of the program with an index of at least 2.00.
4. Students with a graduation average of 3.33 to 3.49 inclusive, will graduate "Cum Laude" (with honors); those with a graduation average of 3.50 to 3.89 will receive a "Magna Cum Laude" degree (with high honors) and the ones who complete studies with an index of 3.90 to 4.00 will graduate "Summa Cum Laude" (with the highest honor).
5. Have approved the last 30 credits in the UPRH. In exceptional cases, this rule can be avoided by decision of a committee formed by the Chancellor, the Dean from Academic Affairs, the director of the department from which the student is classified and the Registrar.
6. Submit a Graduation Request at the Registrar's Office within the time limit stipulated in the academic calendar.
7. Have been recommended by the director and faculty of the program from which the student aspires to a degree.
8. Complete the requirements for the degree within the maximum period allowed:
   Associate Degree:
   Usual Time Required: 2 years
   Maximum Time Allowed: 6 years
   Bachelor's Degree:
   Usual Time Required: 4 years
   Maximum Time Allowed: 10 years
9. Be free of debt or obligations with the Institution.

The University of Puerto Rico at Humacao celebrates its Graduation Ceremony once a year; at the end of the second semester of the academic year. Students that complete graduation requirements at the end of the

summer session or in the first academic year may request a Graduation Certificate at the Registrar's Office on which will be reflected that they have completed their studies.

The graduation ceremony is held in person.

Fees[3]

For United States citizens and permanent residents in Puerto Rico:

- One hundred fifty-seven dollars per credit ($157.00) for students on a two-year program leading to an associate degree, plus the corresponding fees.
- One hundred fifty-seven dollars per credit ($157.00) for students in undergraduate transfer programs or programs leading to a bachelor's degree, plus the corresponding fees.
- Application for Transfer within the UPR System..... $40.00
  (includes three (3) official transcription of credits)
  Late process $52.50
- Application for Transfer outside the UPR System.....$50.00
  Late Process $75.00
- Application for Readmission $35.00
  Late Process $52.50
- Late Registration Charges $20.00
- Credit Transcripts (per copy) .....$ 5.00
- Special Permit $35.00
  (Includes one (1) official transcription of credits)
- One hundred fifty-seven dollars per credit ($157.00) for irregular or transient students registered in undergraduate courses plus corresponding fees and additional charges.

Regular charges

Application for Admission $30.00
Annual Basic Medical Insurance $1,112.00*
Annual Basic Medical Insurance with Pharmacy.....$1,430.00*
Annual Basic Medical Insurance/ Pharmacy/ Dental.....$1,486.00*
Decep.....$157.00

Special charges

Laboratory course charges .....$100.00 c/u
Graduation Fee $80.00
Application for Reclassification..... .....$20.00
Technology Fee $50.00
Maintenance Fee.....$100.00

Other charges

Summer maintenance fee..... .....$50.00
Partial withdrawals charge.....$10.00
Total withdrawal charge.....$15.00
Repeated course charge.....$20.00 per course

Regulations for Payment Process

Registration Payment Dateline

All registration general charges will be paid on the corresponding registration dateline, as specified in the academic calendar.

Deferred payment for Registration

The Students' Dean is authorized to grant, in exceptional cases, a time extension for the registration payment. The student must request the deferment in advance before the specified day for his/her registration. On the day of registration, the student must pay thirty-three percent (33 %) of the credits charges plus all the regular and special corresponding fees. The final registration payment should be made no later than the dateline specified in the academic calendar.

The Registrar will not emit credit transcriptions nor any official documents until all pending charges have been paid.

All payments should be made for the exact amount and in cash ($US) or by manager check or money order to the University of Puerto Rico. Cards, such as ATH, VISA, MASTER CARD, DISCOVER, or AMEX, can be used.

Honors Enrollment

Certification Num. 47-2019-2020, Governing Board

1. This financial aid applies only to undergraduate students.
2. The student must be enrolled in their second year (or in their second year of studies at the UPR, in case of transfers from other institutions), have a general index of 3.50 or more and be within the top four percent (4%) of the cohort of all regular students of their same first year of studies.
3. On academic programs organized by semester, student must have approved twenty-four (24) credits during his/her first study year and no less than thirty-six (36 credits on academic programs organized quarterly and in trimesters.
4. From now on, students must have approved no less than twelve (12) credits during the last session, have a general index of 3.50 or more and be within the top four percent (4%) of the cohort of all regular students of their same first year of studies.

Reimbursement

The last day to pay drop out and be entitled to 50% reimbursement for fees and deposit will be three days after the first day of classes. (Certification Number 2007-

[3] Subject to changes by the UPR Governing Board.

2008-80, Administrative Board) The reimbursement request must be submitted at the Registrar's Office.

STUDENT SERVICES

Deanship of Students

The Deanship of Students is responsible for the coordination of the best and continuous participation of students to an integral experience that will enrich the process of academic learning and their commitment to the campus community. Also, promotes and supervises the student's services aimed at complementing the academic activity and the integral development of the student. From its offices of services, a variety of activities are offered directed to reinforce an optimal mental, physical, and emotional wellness of the University of Puerto Rico at Humacao students. Furthermore, this Deanship coordinates artistic groups, students' organizations, departmental student representation and the General Students Council.

The selection of students to the artistic groups are made through auditions at the beginning of each academic semester. Students who participate on this groups could receive the benefits of a merit scholarship, as stated on Certification Num. 4 (2019-202), amended by Certification Num. 47 and 75 (2019-202) of the Governing Board. All these groups represent the UPRH on official activities, parades, concerts, and athletic events in Puerto Rico and abroad during the academic year.

Mission

Enrich the University experience of the students, using services that promote physical, emotional and mental wellness, the appreciation of cultures and other services that contribute to the achievement of their academic goals; and their participation in the extracurricular activities designed to complement the academic programs.

Vision

The Deanship Students aims to join efforts of those offices that give support services to the students on an integrated way in order for the student to obtain a holistic, structured, human and scientific education tempered with the characteristics of the XXI Century student. Also, the Deanship intends to respond efficiently to the necessities of the students to contribute in their realization of their academic degree.

Dependencies under the Deanship of Students:

- Department of Counseling, Psychology, and Social Work Services
- Admissions Office
- Office of Services for Students with Disabilities
- Financial Aid Office
- Quality of Life Office
- Cultural Activities Office
- Health Services Program
- Athletic Activities
  - Therapeutic Services Program
- General Students Council
- Students Organizations
- Institutional and International Students Relations Office

Admissions Office

The Admissions Office is part of the Deanship of Students Affairs of the University of Puerto Rico at Humacao. It is the first student's contact with the University. The Office has the mission of promoting the University's academic programs and ensure that eligible students have access to Higher Education, especially those in the Eastern area. The Office vision is to seek to automate all admission processes to guarantee an agile and efficient service to the students. It offers services to public and private high school students, and to students from other private university institutions in Puerto Rico and from other countries that are properly accredited by the agencies concerned, as well as to the public in general.

The office's main functions are to disclose admission requirements for the different academic offerings, and to receive, process, and evaluate the admission applications for the programs offered by the Institution. Also, to admit the best students regarding their academic potential and their personal aspirations, by following the UPR procedures and certifications.

The Promotion and Recruitment Area personnel give orientations throughout the year to high schools, public and private, about the academic offerings and the process of applying for admission to the UPR System. During the academic first semester, the "Open House", an institutional annual activity, is organized where high school students are received and tours to the academic areas of interest are held.

Service hours are from Monday through Friday, 8:00 am – 12:00 pm and 1:00 pm – 4:30 pm.

Website: http://www.upr.edu/humacao/admisiones/
Phone: 787-850-9301

Department of Counseling, Psychology and Social Work Services

The **Department of Counseling, Psychology and Social Work Services (DSCPTS, by its Spanish acronym)** offers **free, confidential, and voluntary** assistance to students at UPR in Humacao to support them in managing personal, emotional, academic, and occupational situations.

Services include **professional counseling, psychological therapy, and psychosocial interventions** through individual sessions, group strategies, and crisis interventions. Thanks to its **interdisciplinary** approach, students can receive care from multiple professionals simultaneously, allowing for more comprehensive and integrated support.

In addition, the department's staff provides consultation to both teaching and non-teaching personnel at the university to help address situations that affect student well-being. The department is also responsible for the course ***Introduction to University Life (INTD3005),*** which is aimed at first-year students.
The DSCPTS is accredited by the ***International Association of Counseling Services (IACS),*** which guaranties quality and ethical standards of its services***.***

Centro Ocupacional y de Recursos Informativos (CORI)

Affiliated with the Department, the Occupational and Information Resources Center (CORI, by its Spanish acronym) provides **vocational counseling and career guidance,** as well as information on job opportunities, postsecondary studies, graduate admission exams, and preparation for the working life.
Both services are located in the Student Services Building.
Hours: Monday to Friday, from 8:00 a.m. to 4:30 p.m.

DSCPTS Contacts
Phone: 787-850-9361
E-mail: consejeriadir.uprh@upr.edu
Website: https://www.upr.edu/humacao/dscpts/

CORI Contacts
Phone: 787-850-9311
E-mail: cori.uprh@upr.edu

Direction
Dr. Flor I. Figueroa Rosa, Interim Director
E-mail: flor.figueroa1@upr.edu
Professional Counselor | Ext. 9902

Counselors
Dr. Luz N. Martínez Torres
luz.martinez1@upr.edu | Ext. 9714

Prof. Rolando Pérez Colón
rolando.perez@upr.edu | Ext. 9628

Dr. Solángel Miranda Rosario
solangel.mirandarosario@upr.edu | Ext. 9052

Dr. Magaly Rodríguez Pérez
magaly.rodriguez1@upr.edu | Ext. 9126

Clinical Psychologist
Dr. Grace M. Astacio Olmeda
grace.astacio@upr.edu | Ext. 9523

Social Worker
Prof. Julia Alicea Campos
julia.alicea@upr.edu | Ext. 9194

Administrative Assistant
Mrs. María V. Lebrón Morales
maria.lebron1@upr.edu | Ext. 9361

Athletic Activities

The Athletics Activities Program is responsible for recruiting student-athletes, support personnel, and qualified trainers to comply with the institution's sports calendar. Also, offers support services to co-curricular organizations endorsed by the Deanship of Students. This program coordinates with both national and international entities and athletic services to facilitate students' participation in elective courses or services offered by the Education Department, the Continuing Education Division, or any other academic program from the University of Puerto Rico at Humacao. It also has the responsibility to certify to the Deanship of Students the individual or team participation of our institution in the Interuniversity Athletic League (LAI, by its Spanish acronym). Students who participate could be eligible to receive the benefits established in ***Certification Number 47-2019-2020*** of the *Governing Board.* The campus has adequate sports installations for disciplines such as swimming, olympic wrestling, basketball, volleyball, track and field, among other interuniversity competencies. Also, has a Therapeutic Services Program that offers counseling on sport rehabilitation, evaluation and physical therapy treatment, as well as a physical fitness program for athlete students representing our institution.

Office of Cultural Activities

The Cultural Activities Office is responsible for planning and presenting a program with activities of cultural nature on the different branches of arts for the university and surrounding community. Its main goal is to develop the intellectual potential of the students and of the university body by encouraging the integral development of the human being which leads to a cultural, moral, and intellectual renewal. The Office seeks to integrate the daily activities, achievements and concerns shared by a generation who confronts a world of globalization. Each student will have the opportunity to experiment live on different cultural forums with what has been learned in the classroom. Students will be able to see the development of a play. The historic period will come to life through music which will, at the same time, get them closer to the comprehension of things learned.
Promotes the presentation of theatrical, musical, dance, exposition, discussion forums about actual problems, and other activities.
The Office is located in the University of Puerto Rico at Humacao Theater and its main objective is to contribute to the development of the intellectual potential of the students and of other members of the university community, by encouraging the integral development of the human being; women and men of a cultural, moral and intellectual renewal.

Objectives:

- Collaborate in activities of educational, cultural, or recreational nature which are offered by the academic departments and student organizations.
- Encourage the integration of students in literary, musical, and theatrical creations, by providing mechanisms for presenting quality works and

offering the necessary support on other activities, such as contests, recitals, and the Voice Festival.
- Promote the university talent by presentations of the students in plays, pantomimes, dances, and musical groups.
- Co-sponsor the Collegial Dance Team, which has been distinguished, both within and outside the university community, for its excellence and dynamism.

Financial Aid

The ***Financial Aid Office*** contributes to the achievement of the students' academic and professional goals in the University of Puerto Rico at Humacao, providing financial aid among the available resources. The funds come from federal, state, institutional, and private resources and are available through grants, student loans, and the Study-Work program. With this exercise, students can obtain financial aid from the resources applicable to their necessity, according to the established rules.

The office has Financial Aid officers individually assigned to each student by their last four (4) numbers of their student ID. The official directly guide and collaborate with the students to complete the different application processes and financial aids, among others:

- Information of the financial aid programs available in the institution, such as: grants, Study Work, and student loans.
- Procedure and verification of FAFSA application and student loans.
- Authorization for partial and total withdrawals.
- Certifications of financial aid required by different agencies.
- Application of partial or total withdrawals of the courses enrolled and their implications.
- Guidance on possible debts if not attending the courses enrolled.
- Correction to the grant application (FAFSA).

Officials assigned by student number:

0000-2499: Mayda Rivas | mayda.rivas2@upr.edu
2500-4999: Juan Silva | juan.silva2@upr.edu
5000-7499: Leticia Laboy | leticia.laboy1@upr.edu
7500-9999: Yesenia Sandoval | yesenia.sandoval@upr.edu

The basic requirements to qualify for the financial aid are:

1. Have been admitted to or currently enrolled in the University of Puerto Rico at Humacao in a program leading to a degree and have submitted the Federal Financial Aid Application (FAFSA Grant) and the Institutional Aid Application.
2. Be a United States citizen or permanent resident.
3. Demonstrate an economic need through the information supplied in the application and submit the required evidence on those cases selected for verification.
4. Comply with the Academic Progress Regulations established by the University's Central Administration and maintain the retention index required by the Institution to be considered as a regular student.
5. For males, be enrolled in the selective military service.
6. Have completed the High School requirements.
7. Be attending classes regularly; attendance to classes is mandatory.

Personnel:

José Jiménez Castro, MPA, EdD(s)
Director
jose.jimenez14@upr.edu | 787-850-0000 Ext. 9821

Mariluz López Rodríguez, ADSS
Administration Officer II, Study-Work Program Coordinator
mariluz.lopez1@upr.edu | 787-850-0000 Ext. 9619

Xiamara Meléndez Piña, MBA
Asistente Administrativo III
Xiamara.melendez@upr.edu | 787-850-9342

María del C. Berríos Meléndez, MBA
Financial Aid Officer IV, Student Grants Officer
maria.berrios3@upr.edu | 787-850-0000 Ext. 9823

Juan Silva Lamb, BBA
Financial Aid Officer III
juan.silva2@upr.edu | 787-850-0000 Ext. 9820

Leticia Laboy Laboy, BBA
Financial Aid Officer III
leticia.laboy1@upr.edu | 787-850-0000 Ext. 9818

Mayda Rivas Ramos, BBA
Financial Aid Officer III
mayda.rivas@upr.edu | 787-850-0000 Ext. 9819

Yesenia Sandoval Cruz, MBA
Financial Aid Officer II
yesenia.sandoval@upr.edu | 787-850-0000 Ext. 9817

Website: https://www.uprh.edu/asistenciaeconomica/
Phone: 787-850-9342

Health Services

The Health Services Program provides primary health services to the students. A coordinator provides health services during work hours. Orientation about health and preventive medicine is given to students and employees. The Program also coordinates fairs and ambulatory tests, among others. It oversees the updating of the students' private medical insurance plan and offers the institution's insurance plan.

Office of Services for Students with Disabilities (OSEI, by its Spanish acronym)

The mission of the OSEI is to provide services of excellence that guarantee integration and participation of students with disabilities in education, institutional services and in gaining access to UPR Humacao's physical facilities. Also, to contribute in the achievement of their academic degree minimizing the obstacles by offering a variety of services: academic orientation; coordination of reasonable adjustments in the classroom; academic assistants; workshops and educational conferences; orientation and follow-up in the processes of the Registrar's Office, referrals to the Vocational Rehabilitation Administration (ARV, by its Spanish acronym)); and other external community agencies, classroom to classroom transportation coordinated with the Security and Transit Office, among others. Eligibility to receive services is subject to the disability and for this, evidence from the specialist in the condition is required. The Office guarantee privacy and confidentiality, as established by law. The Office is located at the Student Services Building.

Website: http://www.upr.edu/humacao/osei
e-mail: osei.uprh@upr.edu
Phone: 787-850-9383

Quality of Life

The Quality-of-Life Office has the responsibility of being a source of support resources to potentiate institutional effectiveness of a university life quality. The Office addresses student needs related to overall well-being and campus safety. It also works on the development and implementation of programs and initiatives aimed at improving quality of life. These efforts are carried out progressively, in alignment with the Mission, Vision, and Values of the UPR university system and UPR in Humacao as an institution. The Office manages a non-perishable food pantry for the benefit of the student community. The pantry is located in the Student Services Building, office ESE-21, next to the Admissions Office. Students who need to use this service may complete the electronic form or contact Mrs. Brenda Flecha from the Office of Quality of Life at brenda.flecha@upr.edu.
Additionally, the Office disseminates and promotes full compliance with institutional policies in accordance with applicable laws, regulations, and standards. These policies also support healthy lifestyles and help prevent high-risk behaviors.

Institutional and International Students Relations Office (ORIIE, by its Spanish acronym)

The Institutional and International Students Relations Office is ascribed to the Students Deanship and is responsible for promoting, supporting, and monitoring the university's internationalization processes. The purpose of this office is to create mechanisms that ensure the internationalization of our educational services and student academic mobility to and from other higher education institutions abroad, within the framework of national and international agreements. The Office of Student Institutional and International Relations works in coordination with other university departments and external dependencies with the goal of strengthening and promoting internationalization at both the student level and in knowledge handling, thereby contributing to the achievement of this institutional goal. The University of Puerto Rico at Humacao is affiliated to several consortiums that link it to many universities through a reciprocal agreement (multilateral and bilateral conventions). Its objective is to provide students the opportunity of sharing academic, cultural, and social experiences, encouraging and promoting in a way that students can have a comprehensive and cosmopolitan view of the world and of the judgment elements to act in their own reality. These consortiums are: (NSE) National Student Exchange, groups about two hundred (200) universities and colleges recognized in: United States, Canada, Guam, and the Virgin Islands; International Student Exchange Program (ISEP Direct), composed of international universities; and conventions with several universities of Spain, and Argentine, among others.
To be eligible, the student must meet the following requirements: be enrolled in a program leading to a bachelor's degree with a full academic load (12 credits or more), have and maintain a minimum average of 2.50 and possess English language skills and proficiency (for United States universities). Participants of the student mobility program may attend studies during a semester or an academic year at the host university. The courses taken by the student, while participating in the student mobility program, are recommended by his/her faculty's academic advisor; the credits and grades will be part of the student's academic record at his/her home unit.

Mission

The Institutional and International Students Relations Office of the UPRH actively contributes to the internationalization of our educational services through cooperation agreements and bilateral and multilateral universty partnerships with the goa lof providing the university community with a comprehensive and Cosmopolitan world view.

Vision

The Institutional and International Students Relations Office of the UPRH aims to:

- Strengthen ties and interaction between the university community and other institutions through partnership agreements.

- Institutionalize internationalization within the university by promoting respect for pluralism and multiculturalism.
- Achieve greater international recognition for the university and support the offering of educational services in other Caribbean countries.
- Promote and support student mobility across the university's various academic programs.
- Consolidate internationalization at UPRH as a strategy for bringing diverse world cultures closer to the university.

Student Center

The Student Center is a space for meetings, participation, and student expression in their multiple extracurricular, social, and cultural manifestations. Gives support to academic departments and offices for the planning of individual, group or mass activities in its facilities. The office of the UPRH Students General Council (CGE, by its Spanish acronym), the Búhos 842 Books and Memories store, and the Health Services Office are located here.

OTHER SERVICES

Cafeteria

Offers breakfast, lunch, and snacks from Monday through Friday, 6:00 p. m. to 5:30 p. m. It has a large dining area and a private area for special activities.

Security and Transit Office

The Security and Transit Office, along with a private security company, provides surveillance (twenty-four hours a day) in all the UPRH's installations.

Website: http://www.upr.edu/humacao/seguridad-y-transito/
Phone: 787-850-9367

Table I

To Calculate the Retention Index*

Number of Credits	0	1	2	3	4	5	6	7	8	9
0		1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
10	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
20	1.60	1.60	1.60	1.60	1.60	1.60	1.61	1.61	1.61	1.62
30	1.62	1.62	1.63	1.63	1.64	1.64	1.64	1.65	1.65	1.65
40	1.66	1.66	1.67	1.67	1.67	1.67	1.68	1.68	1.68	1.69
50	1.69	1.70	1.70	1.70	1.71	1.71	1.71	1.72	1.72	1.72
60	1.73	1.73	1.74	1.74	1.74	1.75	1.75	1.75	1.76	1.76
70	1.76	1.77	1.77	1.78	1.78	1.78	1.79	1.79	1.79	1.80
80	1.80	1.81	1.81	1.81	1.82	1.82	1.83	1.83	1.83	1.84
90	1.84	1.84	1.85	1.85	1.86	1.86	1.86	1.87	1.87	1.88
100	1.88	1.88	1.89	1.89	1.90	1.90	1.90	1.91	1.91	1.92
110	1.92	1.92	1.93	1.93	1.94	1.94	1.94	1.95	1.95	1.96
120	1.96	1.97	1.97	1.97	1.98	1.98	1.98	1.99	2.00	

Example: If a student has 97 credits accumulated, select 90 from the vertical column and #7 from the horizontal column at the top of the chart. This means that the retention index for a student with 97 credits is 1.87.

*Approved by the Academic Board (now Academic Senate) on September 25, 1980; Certification Num. 1980-81-2.

Table II

To Determine the Index to Qualify for Probation *

Number of Credits	0	1	2	3	4	5	6	7	8	9
0		1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
10	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
20	1.40	1.40	1.40	1.40	1.40	1.41	1.41	1.42	1.42	1.43
30	1.43	1.44	1.44	1.45	1.45	1.46	1.46	1.47	1.47	1.48
40	1.48	1.49	1.49	1.50	1.50	1.51	1.51	1.52	1.52	1.53
50	1.53	1.54	1.55	1.55	1.56	1.56	1.57	1.57	1.58	1.58
60	1.59	1.59	1.60	1.60	1.61	1.61	1.62	1.63	1.63	1.64
70	1.64	1.65	1.65	1.66	1.66	1.67	1.68	1.68	1.69	1.69
80	1.70	1.70	1.71	1.72	1.72	1.73	1.73	1.74	1.74	1.75
90	1.76	1.76	1.77	1.77	1.78	1.79	1.79	1.80	1.80	1.81
100	1.82	1.82	1.83	1.83	1.84	1.85	1.85	1.86	1.86	1.87
110	1.88	1.88	1.89	1.90	1.90	1.90	1.90	1.90	1.90	1.90
120	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	

*Approved by the Academic Board (now Academic Senate) on September 25 of 1980; Certification Num. 1980-81-2.

Academic Degrees Conferred in the University of Puerto Rico at Humacao

Associate Degree in

- Electronics Technology and Nanotechnology
- Chemical Technology
- Physical Therapy
- Occupational Therapy**

Bachelor's Degrees

- Bachelor in Business Administration with major in:
  - Accounting
  - Management
  - Human Resources
  - International Commerce:
    - In-person**
    - Online**
- Bachelor in Technology, Administration and Business Management
- Bachelor of Social Sciences with Social Action Research*
- Bachelor in Elementary Education with major in Primary Level and Special Education:
  - In-person
  - Online
- Bachelor of Arts with major in:
  - Elementary Level English
  - Secondary Level English
  - Communication Technology
  - Studies of Puerto Rico and the Caribbean*
- Bachelor of Arts in Social Work
- Bachelor of Sciences with major in:
  - General Biology
  - Wildlife Management*
  - Microbiology
  - Coastal Marine Biology*
  - Physics Applied to Electronics*
  - Industrial Chemistry**
- Bachelor in Science in Data Science*
- Bachelor of Sciences in Nursing

* Unique programs in Puerto Rico (6)

** Unique programs in the UPR System UPR (4)

ACADEMIC DEPARTMENTS AND PROGRAMS

ACADEMIC DEPARTMENTS

ARTS

Social Sciences

Website: http://www.upr.edu/humacao/depto-ciso/
e-mail: ciso.uprh@upr.edu
Phone: 787-850-9316

History and Objectives

The Social Sciences Department has shaped thousands of students who have assumed responsibility positions on public, private and third sector administrations, contributing to the economic, social, and politic development of Puerto Rico. The Department has a highly qualified teaching body with wide research, teaching and community service background that promotes critical thinking, civic responsibility, and socially compromised research among students.

Academic Program

The Social Sciences Department offers a **Bachelor of Social Sciences with Social Action Research (INAS, by its Spanish acronym).**
Also, the Department's faculty offers to the university community educational activities in Social Sciences, participates in educational and service projects for the community, especially in projects of social action, conducts social researches and produces publications.

BACHELOR OF SOCIAL SCIENCES WITH SOCIAL ACTION RESEARCH

The main orientation of the Program is aimed to help graduates contribute on satisfying the needs and demands of the community sector, the third sector and of the Puerto Rico's government in tasks related to the community organization, the research and the knowledge systematization, the popular education, the economic development, the self-management, and other similar tasks.
The program's curriculum is based in the methodology and the instructional strategies provided or derived from the model of participatory action research in the Social Sciences. This model offers:

- An innovative teaching methodology based in the practice, research skills and attitudes development tied to action and in curriculum contents based on these guidelines.
- Curricular contents that connect teaching-learning, research and service.
- A transdisciplinary approach that implies the creation of work groups formed by people from several disciplines to allow for a "simultaneous approach" and a "common analysis" of problems.
- Involvement of the community in the students' educational and investigative process
- Prepare the student for the continuation of graduate studies in several disciplines of social sciences or in related fields, including communication, public administration, economy, criminology, psychology, criminal justice, planning, law, labor relations and sociology, among others.

Curricular Sequence

(For students admitted before the first semester 2024-2025)

Summary of credits:

General Education requirements.....53
Major requirements.....39
Social Sciences courses.....12
Individual area of interest.....12
Free electives.....12
Total.....128

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
CISO3121	Introduction to Social Sciences I	3
HUMA3021	Cultural Manifestations of Western Man I	3
CIBI3001	Fundamentals of Biology I	3
INTD3005	Integration to University Life Workshop	2
	Total	17

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
CISO3122	Introduction to Social Sciences II	3
HUMA3022	Cultural Manifestations of Western Man II	3
CIBI3002	Fundamentals of Biology II.	3
MATE3008	Mathematics for Social Sciences	3
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3201	Introduction to Literary Genres I	3
INGL3201	Grammar, Composition and Analytical Reading I	3
INAS3021	Fundamentals of Participatory Action Research	3
HIST3245	History of Puerto Rico – Compendium	3
SOCI3245	Principles of Sociology	3
	Corequisite in Social Sciences	3
	Total	18

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3202	Introduction to Literary Genres II	3
INGL3202	Grammar, Composition and Analytical Reading II	3
INAS3022	Introduction to Community Processes in Participatory Action Research[1]	3
CISO4042	Applied Statistical Inference	3
SOCI3247	Sociological Theories	3
	Total	15

SUMMER

Code	Course	Crs.
INAS4045	Communitarian Development and Organization in the Caribbean[1]	4
	Total	4

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
INAS4000	Evaluation of Program and Projects[1]	3
INAS4001	Methodology of Participatory Action Research I[1]	4
	Corequisite in Social Sciences[2]	3
	Course on individual area of interest	3
	Elective	3
	Total	16

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
INAS4011	Methodology of Participatory Action Research II[2]	4
SOCI4505	Qualitative Research[1]	4
	Corequisite in Social Sciences[2]	3
	Course on individual area of interest	3
	Total	14

FOURTH YEAR – FIRST SEMESTERE

Code	Course	Crs.
INAS4021	Methodology of Participatory Action Research III[1]	4
	Course on the Area of Humanities [4]	3
	Elective	3
	Course on individual area of interest	3
	Total	13

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
INAS4031	Methodology of Participatory Action Research IV[1]	4
	Elective	3
	Elective	3
	Course on individual area of interest	3
	Total	13

Notes:

1. *Students must obtain at least a grade of C to approve the core courses. These courses require fieldwork.*
2. *The student must take three of the following Social Sciences courses: CIPO–3011, ECON-3005, PSIC-3005, GEOG-3155, ANTR-3005.*
3. *This course will be offered every two summers. The student must take the course in the summer after the second or third year, depending on when the course is offered.*
4. *The following courses are recommended among others: FILO-3005, FILO-4471, HIST-3305, TEAT-3011, TEAT-3012, TEAT-3191, TEAT-3192, FRAN-3201.*

Curricular Sequence

(For students admitted from the first semester 2024-2025)

Summary of credits:

General Education requirements.....30
Major requirements.....45
Social Sciences courses.....27
Individual area of interest.....9
Free electives.....9
Total.....120

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
INAS3011	Introduction to the Social Sciences Program with Social Action Research	1
CISO3121	Introduction to Social Sciences I	3
MATE3001	Elementary Mathematics ***or***	3
MATE3008	*Mathematics for Social Sciences*	
ESPA3101	Basic Spanish I	3
HUMA/FILO		3
	Total	13

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
INAS3021	Basic Principles of Participatory Action Research	3
CISO3122	Introduction to Social Sciences II	3
CISO3155	Fundamentals of Statistical Reasoning	3
ESPA3102	Basic Spanish II	3
HUMA/FILO		3
	Total	15

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
INAS3022	Introduction to Community Processes in Participatory Action Research	3
SOCI3245	Principles of Sociology	3
SOCI3265	Methods and Techniques of Social Research	3
HIST3245	History of Puerto Rico - Compendium	3
XXXX	Corequisite in Social Sciences: ANTR3005/CISO3085/GEOG3101/ ESPA4231	3
	Total	15

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
INAS4001	Methodology of Participatory Action Research I	4
SOCI3247	Sociological Theories	3
SOCI4505	Qualitative Research	4
INAS4045	Community Development and Organization in the Caribbean – Part 1	4
	Total	15

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
INAS4011	Methodology of Participatory Action Research II	4
INAS4000	Programs and Projects Evaluation	4
INAS4045	Community Development and Organization in the Caribbean – Part 2	2
CISO3187	Sociological Analysis of the Woman	3
BIOL/QUIM /FISI		3
	Total	16

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
INAS4021	Methodology of Participatory Action Research III	4
XXXX	Corequisite in Social Sciences	3
XXXX	Course on individual area of interest	3
XXXX	Elective	3
BIOL/QUIM /FISI		3
	Total	16

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
INAS4031	Methodology of Participatory Action Research IV	4
XXXX	Corequisite in Social Sciences	3
XXXX	Course on individual area of interest	3
XXXX	Elective	3
BIOL/QUIM /FISI		3
	Total	16

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
INAS3031	From the Foundations of Participatory Action Research to Its Direct Application	2
INGL3102	Basic English II	3
XXXX	Corequisite in Social Sciences	3
XXXX	Course on individual area of interest	3
XXXX	Elective	3
	Total	14

COURSE DESCRIPTION

ANTR-3005. ANTHROPOLOGY PRINCIPLES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3122. Corequisite(s): None. Anthropology is the comparative study of humanity. It combines the study of human biology and the learned and shared patterns of human behavior called culture. It includes the discussion of physical anthropology and the principles of evolution, as well as the contribution of archaeology, cultural anthropology, and linguistics. The human being is analyzed as a complete organism that adapts to his/her environment through a complex interaction of biology and culture.

CIPO-3011. PRINCIPLES AND PROBLEMS OF POLITICAL SCIENCES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3122. Corequisite(s): None. This course familiarizes the student with its study method. Analyzes ideological beliefs, basic problems, and general types of institutions and political systems.

CIPO-3025. POLITICAL SYSTEM OF THE UNITED STATES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3122. Corequisite(s): None. Will study the historical background of the United States constitutional government on which it is based. Also, will analyze the structure of this government at national level and the particular style of its political process with emphasis on separation of powers, federalism, and the role played by groups of interests and political parties.

CIPO-3035. POLITICAL SYSTEM OF PUERTO RICO. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3122. Corequisite(s): None. Historical and analytical study of the government of Puerto Rico from 1898 to the present; institutions developed during the period 1898-1952; the Constitution of the Commonwealth of Puerto Rico; the political process in Puerto Rico; the legislative, executive, and judicial branches; municipal governments and the relationship between Puerto Rico and the United States.

CIPO-3065. INTERNATIONAL RELATIONS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CIPO-3011. Corequisite(s): None. The nature of international relations, nationalism, militarism, armaments; history of international relations; foreign policy; democracy functions; international organizations.

CIPO-3125. HISTORY OF DIPLOMACY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. History of the diplomatic method from the renaissance to the present. The course will examine the use made of said method in the most transcendental international events during this era. Efficiency and defects of the diplomatic method will also be discussed.

CIPO-4016. GOVERNMENT AND POLITIC OF THE MIDDLE EAST. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Historical and analytical study of the constitutional and political development of the Middle East countries.

CIPO-4065. PUBLIC INTERNATIONAL LAW. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Description and judicial analysis of concepts, principles, and problems that arise from relationships between units and national policies.

CIPO-4095. POLITICAL SYSTEMS OF THE CARIBBEAN. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CIPO-3011. Corequisite(s): None. Constitutional, political, and governmental development and practices in countries of the Caribbean area, including the Antilles, Mexico, Central
America, Columbia, and Venezuela.

CISO-3056. DIMMENSIONS AND SOCIAL IMPLICATIONS OF TECHNOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Study of the historical and social processes that have conditioned the development of technology and its impact on society, work, education, and culture.

CISO-3085. SOCIETY AND CULTURE OF PUERTO RICO. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3122, SOCI-3245. Corequisite(s): None. General analysis of the Puerto Rican society through its cultural manifestations. The origins and social effects of these manifestations are studied. Concepts of nation, national and cultural identity, social classes, modernization, and social and cultural change are examined.

CISO-3121. INTRODUCTION TO SOCIAL SCIENCES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course is oriented towards the comprehension of the social forces that have built the world we live in. the student is introduced to the analysis of basic problems in contemporary society, such as the incorporation of the individual in society and social, political, and economic problems, inserting Puerto Rico in this process.

CISO-3122. INTRODUCTION TO SOCIAL SCIENCES II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121. Corequisite(s): None. Continuation of the course CISO-3121.

CISO-3155. FUNDAMENTALS OF STATISTICAL REASONING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3122, MATE 3001 o MATE 3077 o MATE-3008. Corequisite(s): None. The course purpose is to teach the basic concepts of statistical reasoning to the student, as well as the mechanics involved when computing basic statistical measurements applicable to socio-psychological problems. Emphasis is given to why and when to use determined measurements and their limitations.

CISO-3187. SOCIOLOGICAL ANALYSIS OF WOMEN. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. In this course, roles assigned to women and men through the social and historical processes are discussed. The course also will examine how the process of socialization fosters differences in conduct between men and women.

CISO-4042. APPLIED STATISTICAL INFERENCE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3077. Corequisite(s): None. Study of the methods which permit us to infer from limited data (samples) what is true about a larger collection of data (universe).

ECON-3005. INTRODUCTION TO ECONOMICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3122. Corequisite(s): None. The course introduces student in the theoretical knowledge and application of the foundations of economics: concept and historical perspective, fundamental problems, analysis method, foundations of microeconomics, foundations of macroeconomics, and contemporary and future problems.

GEOG-3016. WORLD GEOGRAPHY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3122. Corequisite(s): None. World Geography offers an introduction to the contemporary world, emphasizing spatial processes that define its distribution. To achieve this, the principal regions of the world are comprehensively examined. The course presents a global view of the physical, economic, differential, and regional articulation processes around the world. The following factors that intervene in their development are evaluated: physical and human content, advantages and disadvantages, barriers and interrelationships, potential, and general overview. Also, presents different geographical perspectives. These areas include culture; levels of economic development; agricultural and industrial bases; demographics, population, and their impact; physical environment; and regional connections. The main topic of this course emphasizes the interconnection of all regions of the world.

GEOG-3045. POPULATION GEOGRAPHY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. Study of population distribution and growth as well as characteristics and factors of change: birth rates, death rates, and migratory tendencies. Emphasizes how demographic and socio-economic variables interact with each other in the

physical world to produce particular characteristics in the population. This course also analyzes the demographic processes that influence Puerto Rico, and its internal and external population.

GEOG-3101. GEOGRAPHY OF THE CARIBBEAN ISLAND. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO 3121-CISO 3122. Corequisite(s): None. The Caribbean Geography course gives an overall view of the physical, economic, political, and social processes that explain the spatial organization of the Caribbean area on different scales. The course gives an introduction of how the physical-biological (climate, topography, vegetation, etc.) and cultural (language, ethnicity, music, food, politic, and others) processes are combined to develop a large variety of environments and scenarios in the Caribbean region, emphasizing in the spatial processes which defines its distribution. It integrates the studies of the landscape implications on the flora, fauna and social organization in the island environments. Also, considers the historical impact of European colonialism, slavery-servitude, and the causes and effects of the human migration on the Caribbean islands. Similarly, different geographical perspectives are presented. These areas include culture, economic development levels, agricultural and industrial basis, demography, population, and its repercussion in the physical environment of the Caribbean and its regional interconnections.

GEOG-3155. ELEMENTS OF GEOGRAPHY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3122. Corequisite(s): None. Identification, analysis, and systematization of physical and cultural elements of the land space as they exist in interrelation and interconnection. The goal of this course is to create awareness about the harmonic role of human beings and their environment.

GEOG-3165. GEOGRAPHY OF PUERTO RICO. Credits: 3. Lecture hours per week: 3. Prerequisite(s): GEOG-3155. Corequisite(s): None. An intensive geographical analysis of Puerto Rico, its most important physical, biotics and human traits: regionalization of Puerto Rico and appreciation of its environment. The relative importance and implications of Puerto Rico's position in the Caribbean will be emphasized.

INAS-3011. INTRODUCTION TO THE SOCIAL SCIENCES PROGRAM WIRH SOCIAL ACTION RESEARCH. Credits: 1. Lecture hours per week: By agreement. Prerequisite(s): None. Corequisite(s): None. This course aims to prepare students for the university life and for community work. It provides an introductory and broad overview of the Social Action Research, presents a variety of research and participative action projects, reflects on the ethics of community work, and outlines basic activities and tasks of the program courses. In addition, it develops the skills and attitudes needed to success in the university and explores careers and academic prospects after completing the program.

INAS-3021. FUNDAMENTALS OF PARTICIPATORY ACTION RESEARCH. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3122. Corequisite(s): None. This course is an introduction to social action research. In it, the fundamentals of participatory action research, participant community and citizen participation for community development are discussed. The course has a practical focus on a way that students can reinforce said concepts. Introduces students to community work in Puerto Rico and to the process of participatory action research. Also, provides a general view of the professional field of research and social action. It points out the integration of theory and practice in social research and initiates the student into the process of this integration. It emphasizes the reflection process about the construction of knowledge and integration among theory and practice. Visits to a variety of organized communities are integrated.

INAS-3022. INTRODUCTION TO THE COMMUNITY PROCESSESS IN PARTICIPATORY ACTION RESEARCH. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INAS-3021. Corequisite(s): None. The course has a practical approach; students manage to strengthen the concepts of Action Research, Participatory Research, participant community and citizens' participation from the same communities. Provides a general view of the professional field of research and social action. Points out the integration of theory and practice in social research. Most of the activities are focused on the community service centers or on the communities, since the course focus is practice. These research experiences are designed in a way to illustrate and reflect about the central concepts of action research. The course includes the development of a pre-proposal of research with the community and contains continuous activities of reflection, documentation and theorization in a way that guarantees a systematic process of the construction of knowledge.

INAS-3031. FROM THE FOUNDATIONS OF PARTICIPATORY ACTION RESEARCH TO ITS DIRECT APPLICATION. Credits: 2. Lecture hours: 30; By agreement. Prerequisite(s): INAS-3022. Corequisite(s): None. The purpose of the course is to support students in their transition from university to the workforce. Graduate studies, or entrepreneurship and professional consulting, in alignment with their interests and plans. The course will be conducted in a personalized and independent manner, and will be offered by agreement. Each student will set their short-term goals and identify a project that will allow them to apply, practice, deepen, or continue developing the knowledge, competencies, skills, attitudes, and ethical values of the Program.

INAS-4000. PROGRAMS AND PROJECTS EVALUATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-4042. Corequisite(s): None. Pretends to develop in students the capacity to evaluate programs of social intervention which will build their action field as a professional. Apart from highlighting the importance of the evaluation process, the course establishes the differences in terms that usually are associated with evaluation and the different models. The course will take students through the general steps of the evaluation process.

INAS-4001. METHODOLOGY OF PARTICIPATORY ACTION RESEARCH I. Credits: 4. Lecture hours per week: 4. Prerequisite(s): INAS-3022. Corequisite(s): None. This course constitutes the core curricular component about methodology of the participatory action research (IAP, by its Spanish acronym) and the communal organization of the social action research program. Consists of a sequence of four courses. Community and neighborhood concepts are discussed from different perspectives. Theoretical and practical aspects of the community organization and its socio-cultural and political context are studied. Presents a general view of the historical development of a community organization and the elements that have contributed or limited this collective action. Participatory IAP methodology is studied. Merging of research and social practice is presented as a fundamental orientation of this methodology in order to know the reality and transform it. Strategies and skills for the practice of communal organization, the identification and formation of leaders, and community movement are also objects of study.

INAS-4011. METHODOLOGY OF PARTICIPATORY ACTION RESEARCH II. Credits: 4. Lecture hours per week: 4. Prerequisite(s): INAS-4001. Corequisite(s): None. This course is the second core curricular component about the methodology of Participatory Action Research (IAP, by its Spanish acronym) and the communal organization of the Social Action Research program. The methodology of participatory IAP is studied. Merging of research and social practice is presented as a fundamental orientation of this methodology in order to know the reality and transform it. The identification and study of needs and problems with the involvement of the population concerned is considered as the basis of the research process. This process assumes mutual learning and understanding among researchers and communities. Research is presented as an element that must lead to a formulation and execution of specific actions. Strategies and skills for the practice of communal organization, identification and formation of leaders, and community movement are also objects of study.

INAS-4021. METHODOLOGY OF PARTICIPATORY ACTION RESEARCH III. Credits: 4. Lecture hours per week: 4. Prerequisite(s): INAS-4011. Corequisite(s): None. This course is the third course from the core curricular component of the methodology seminar in participatory action research (IAP, by its Spanish acronym) and the communal organization of the social action research program. Participatory IAP methodology is studied. Merging of research and social practice is presented as a fundamental orientation of this methodology in order to know the reality and transform it. The research process assumes mutual learning and understanding among researchers and communities. Research is presented as an element that must lead to a formulation and execution for the communal organization practice, identification and formation of leaders, and the community movement are also objects of study.

INAS-4031. METHODOLOGY OF PARTICIPATORY ACTION RESEARCH IV. Credits: 4. Lecture hours per week: 4. Prerequisite(s): INAS-4021. Corequisite(s): None. This course is the fourth course from the core curricular component of the methodology seminar in participatory action research (IAP, from its Spanish acronym) and the communal organization of the social action research program. Participatory IAP methodology is studied. Merging of research and social practice is presented as a fundamental orientation of this methodology in order to know the reality and transform it. Research is presented as an element that must lead to the formulation and execution of specific actions. The strategies and skills for the communal organization practice, identification and development of leaders, and the community development are also objects of study.

INAS-4045. COMMUNITY DEVELOPMENT AND ORGANIZATION IN THE CARIBBEAN. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CISO-3122. Corequisite(s): None. Course designed to extend the students' cultural knowledge and horizons through experiences of diverse countries. The course promotes experiences exchange among students on participatory research projects and community organization in Caribbean countries. The intent is to expand the professors' and students' environment beyond the University walls, turning them towards a coexistence of the community where they live and work. The course consists of two mutually interrelated components: theory and practice. The theoretical component is aimed at the acquisition of introductory knowledge by the students about the Caribbean region. The historical development of the area, the sociocultural characteristics, the political economic models, as well as the geopolitical view of the region, is studied.

PSIC-1005. APPLIED GENERAL PSYCHOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. General introduction to psychology for students from the technical course. Principles and basic theories of psychology in a pragmatic reference framework are discussed; gives special emphasis to their application.

PSIC-1006. HUMAN RELATIONS IN THE INDUSTRY. Credits: 3. Labor hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Application of psychology basic concepts in the industrial scenario, especially to the communication process in interpersonal relations and in the employee's motivation. Discussion of the basic concepts in an organization's supervision and management and its direct relation with the company's productivity.

PSIC-3005. GENERAL PSYCHOLOGY. Credits: 3. Labor hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. This course offers a sample of the basic topics in psychology and the scientific method as an instrument of study in this discipline. Studies the basic issues of an individual and society, as well as several approaches and methodology to solve these problems.

PSIC-3006. SOCIAL PSYCHOLOGY. Credits: 3. Labor hours per week: 3. Prerequisite(s): PSIC-3005. Corequisite(s): None. This course is a psychological approach of social life from the individual's perspective, the institution's psychology, and the social conflicts. Also, presents a critical analysis of the relation between culture and personality.

PSIC-3007. PERSONALITY DEVELOPMENT. Credits: 3. Labor hours per week: 3. Prerequisite(s): PSIC-3005. Corequisite(s): None. Studies the personality in its development process and the different theories on this topic.

PSIC-3048. GROUP DINAMICS. Credits: 3. Labor hours per week: 3. Prerequisite(s): PSIC-3005. Corequisite(s): None. Study of the forces or basic social processes in the situation of groups that determine the behavior of the group and its members. These processes are studied through group experiences and analysis which permit to develop sensibility toward group processes and towards the individual behavior.

PSIC-3205. INTRODUCTION TO FORENSIC PSYCOLOGY. Credits: 3. Labor hours: 45. Prerequisite(s): PSIC-3005. Corequisite(s): None. The course is intended to provide an overview of the practice of forensic psychology as a specialty within psychological practice and how it relates wither disciplines within the legal setting. It will cover the basic concepts of forensic psychology, its definition, historical development, intervention strategies, and specific scenarios where this branch of psychology is applied. Additionally, the roles of forensic psychologists involved in the legal process will be defined and clarified. Finally, the course will discuss various populations or psychosocial phenomena that are commonly the focus of study and intervention in forensic psychology as a discipline.

PSIC-4116. PSYCHOOGY OF HUMAN SEXUALITY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): PSIC-3005. Corequisite(s): None. Through this course, students will be exposed to diverse academic experiences that will provide them with general knowledge about human sexuality and its relation with psychology and mental health. The course will broaden the traditional view of human sexuality and promote a scientific perspective, with emphasis on distinguishing the concepts of sex and gender. It will include a historical review of sexuality from various perspectives: biological, psychological, sociological, and legal. Additionally, the course will address mental health disorders related to human sexuality, including sexual dysfunctions and paraphilic disorders. Finally, the theoretical content will be connected to the reality of Puerto Rico, taking into account the island's cultural idiosyncrasies and current social issues, with the aim of promoting relevant solutions.

SOCI-3005. CRIMINOLOGY. Credits: 3. Labor hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. This course examines the different conceptualizations and theories for the explanation of crime and criminality. Violence, crime, and criminality are studied from a social perspective. Emphasis is given to crime and violence in the Puerto Rican society. Its historical background, different dimensions and manifestations and the existing methods for justice are studied.

SOCI-3055. JUVENILE DELINQUENCY AND ITS PREVENTION. Credits: 3. Labor hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. The course begins with a discussion of basic concepts about juvenile delinquency. The problem of delinquency is discussed from different perspectives. Students are exposed to the several theories about the causes of crime and delinquency. An analysis is made of the relation between social, political, psychological, economic, and cultural factors and their relationship with the juvenile delinquency problem. Also, special legislation about minors, agencies, services aimed at prevention and the intervention with the young delinquent is analyzed, especially in Puerto Rico. In the course, situations are analyzed and discussed, and the student will examine the ethical and valuation aspects that could arouse in their intervention with the community.

SOCI-3245. PRINCIPLES OF SOCIOLOGY. Credits: 3. Labor hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. This course intends to discover the basic structure of human society, identify the main forces that hold groups or weaken them and learn the conditions that will transform social life; in addition, analyses and interprets the social data in a scientific way. The course seeks to develop in the student its own opinion regarding nature and the role of sociology in society and, specially, in the Puerto Rican context.

SOCI-3247. SOCIOLOGICAL THEORIES. Credits: 3. Labor hours per week: 3. Prerequisite(s): SOCI-3245. Corequisite(s): None. Presents the range of theories produced by Sociology. Theorists are clustered in three large groups: (1) Marx and conflict theory; (2) Weber and functionalism; (3) modern approach of exchange, symbolic interactionism, and ethnomethodology.

SOCI-3265. METHODS AND TECHNICS OF SOCIAL RESEARCH. Credits: 3. Labor hours per week: 3. Prerequisite(s): CISO-3155, SOCI-3245. Corequisite(s): None. The course consists of two phases: the theoretical study of sociological and anthropological research designs, including theories, problems, hypothesis, definitions of variables, sampling techniques and analysis and interpretation methods; an empirical research where theoretical concepts and methods will be applied.

SOCI-3315. SOCIOLOGY OF THE FAMI. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122, SOCI-3245, SOCI-3247. Corequisite(s): None. Sociocultural and sociological study of the family, origin, and development until present day. The crisis of the traditional family in modern industrialized societies and the emergence of the nuclear family. New contemporary forms of family life, premarital relations, divorce, widowhood, and their social implications. An analysis will be made of the Puerto Rican family, its changes, and future tendencies.

SOCI-4505. QUALITATIVE RESEARCH. Credits: 4. Labor hours per week: 4. Prerequisite(s): SOCI-3245. Corequisite(s): None. Introductory course to the methods and techniques of qualitative research. Its focus is on participant observation, the recording of observation notes, the interview techniques and in transformation of data field into an ethnographic document. The course covers the techniques of analysis of content and documents, case studies, and life histories. It points out the methodological, theoretical, and practical aspects that researchers confront when using these methods. The course includes fieldwork equivalent to three hours per week for five weeks.

FACULTY

CRUZ MCDOUGALL, VIVIANA. *Assistant Professor, PhD*, 2021, Ana G. Méndez University, Puerto Rico.

DÍAZ TORRES, RAFAEL R. *Assistant Professor, PhD*, 2019, Center for Advanced Studies of Puerto Rico and the Caribbean, Puerto Rico.

GALIANO QUIÑONES, CARLOS A. *Associate Professor, PhD,* 2010, Carlos Albizu University, Puerto Rico

MARCANO MEDINA, JUAN E. *Full Professor, PhD*, 2017, University of Michigan, United States.

MORI GONZÁLEZ, ROBERTO. *Professor Emeritus*, 2015, *PhD*, 1978, Princeton University, United States.

MULERO DÍAZ, MARÍA D. *Full Professor*, *PhD*, 2000, Temple University, United States.

RIVERA BONILLA, IVELISSE. *Full Professor*, *PhD*, 2003, University of California, St. Croix.

RODRÍGUEZ RODRÍGUEZ, LUIS R. *Full Professor*, *PhD, 2018,* Center for Advanced Studies of Puerto Rico and the Caribbean, Puerto Rico.

TORRES ABREU, ALEJANDRO, *Associate Researcher*, *PhD,* 2009, University of Lancaster, United Kingdom.

VÁZQUEZ VERA, EFRAÍN. *Full Professor*, *PhD*, 1999, Complutense University of Madrid, Spain.

Communication

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History and Objectives

The Department of Communication was established in 1971, offering a study program leading to an Associate Degree in Audiovisual Communications. The Program was created responding to the increasing development of educational technology and to the demand of audiovisual technicians in Puerto Rico. As a result of the expansion and complexity of the information technology world, and the incursion of digital technologies on graphic arts, audio, television and photography fields, the academic program was revised. In August 2003, the curricular revision was approved and the new program leading to an Associate Degree in Communication Technology was also approved[1].

This program was designed to provide students with the knowledge, skills and attitudes needed in the emerging world of technological and informational innovations. The program educated personnel in communication technology to serve the increasing demands of the Puerto Rican society in education, public service, industry, and commerce.

In June 2012, the Bachelor of Arts with a Major in Communication Technology was approved. The Bachelor's Degree attends the needs in the world of informatics to prepare professionals capable to responsibly solve the challenges in a world of digital multimedia technologies. The Bachelor of Arts with Major in Communication Technology offers two areas of interest or emphasis: Graphic Design and Audio and Video. Also, the Department of Communication offers courses of Educational Technology for the Bachelor program in English.

The Department of Communication has: laboratories for Graphic Design in 2D and 3D Animation with MAC platforms; two Digital laboratories and a Traditional one for Photography; a Photograph Study; a 3D printer, an ample Television Study with cameras and system for recording and transmit via Internet in 4K; an ample Study for Audio recording with a digital console and Pro Tools System; seven Video Work Stations with Final Cut systems, two Audio Work Stations and a modern Radio Studio.

On 2020, the program of BA with a major in Communication Technology was accredited by the ***Accrediting Council on Education in Journalism and Mass Communication (ACEJMC).***

Academic Program

The Department offers a study program leading to the following academic degree:

BACHELOR OF ARTS WITH MAJOR IN COMMUNICATION TEHCNOLOGIES
With (2) Areas of Interest or Emphasis in:
AUDIO AND VIDEO &
GRAPHIC DESIGN

The Bachelor of Arts with Major in Communication Technology forms communicators better prepared in the area of multimedia digital technologies. Some courses that distinguish the program are: Traditional and Digital Media Literacy, Advanced Video and Audio Production, Animation and 3-D Graphics, Integrated Promotional Communication.

Curricular Sequence

Curriculum of the Bachelor of Arts with major in Communication Technology – Graphic Design

Summary of credits:

General Education requirements.....63
Major requirements.....51
Electives in liberal arts..... 12
Free electives.....3
Total.....129

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic Spanish I	3
COMU3008	Introduction to the Study of Communication	3
COMU3010	Introduction to Graphic Design	3
XXXX	Course in Natural Sciences *(Biology, Physics or Chemistry)*	3
	Total	15

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
COMU3006	Introduction to Photography	3
COMU3009	Fundamentals of Writing for Audiovisual Media	3
XXXX	Course in Natural Sciences *(Biology, Physics or Chemistry)*	3
	Total	15

[1] This program is in moratorium since 2012.

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3201	Grammar, Composition and Analytical Reading I	3
COMU3207	Traditional and Digital Media Literacy	3
HUMA3021	Cultural Manifestations of Western Man I	3
CISO3121	Introduction to Social Sciences I	3
COMU3116	Digital Graphic Design	3
XXXX	Course in the area of Spanish	3
	Total	18

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3006	Writing and Composition	3
INGL3202	Grammar, Composition and Analytical Reading II	3
HUMA3022	Cultural Manifestations of Western Man II	3
CISO3122	Introduction to Social Sciences II	3
COMU3119	Graphic Production	3
MATE3008	Mathematics for Social Sciences	3
	Total	18

THIHRD YEAR – FIRST SEMESTER

Code	Course	Crs.
HIST3245	History of Puerto Rico – Compendium	3
ADMI3005	Administrative Theory	3
COMU4007	Principles of Computer Animation	3
COMU4129	Integrated Marketing Communication	
XXXX	Course in the area of Social Sciences	3
	Total	15

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
COMU4008	Production of Interactive Multimedia	3
o		
COMU4009	*Animation and 3-D Graphics*	
COMU4115	Writing, Rhetoric and Digital Media	3
XXXX	Course in the area Humanities	3
XXXX	Elective in Communication	3
XXXX	Elective in liberal arts	3
XXXX	Elective in liberal arts	3
	Total	18

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
COMU4128	Ethics, Law and Communication	3
COMU4326	Research in Communication	3
XXXX	Course in the area of Social Sciences	3
XXXX	Elective in Communication	3
XXXX	Elective in liberal arts	3
	Total	15

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
COMU4336	Supervised Practice in Communication	3
XXXX	Elective in Communication	3
XXXX	Course in the area Humanities	3
XXXX	Elective in liberal arts	3
XXXX	Free elective	3
	Total	15

Curriculum of the Bachelor of Arts with major in Communication Technology – Audio and Video

Summary of credits:

General Education requirements……63
Major courses requirements……51
Electives in liberal arts……12
Free electives……3
Total……129

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
COMU3008	Introduction to the Study of Communication	3
COMU3009	Fundamentals of Writing for Audiovisual Media	3
XXXX	Course in the area of Natural Sciences *(Biology, Physics or Chemistry)*	3
	Total	15

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
COMU3006	Introduction to Photography	3
COMU3118	Principles of Acoustic and Studio Production	3
XXXX	Course in the area of Natural Sciences *(Biology, Physics or Chemistry)*	3
	Total	15

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3201	Grammar, Composition and Analytical Reading I	3
COMU3207	Traditional and Digital Media Literacy	3
HUMA3021	Cultural Manifestations of Western Man I	3
CISO3121	Introduction to Social Sciences I	3
COMU3018	Fundamentals of Video Production	3
XXXX	Course in the area of Spanish	3
	Total	18

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3006	Writing and Composition	3
INGL3202	Grammar, Composition and Analytical Reading II	3
HUMA3022	Cultural Manifestations of Western Man II	3
CISO3122	Introduction to Social Sciences II	3
COMU3120	Advanced Production of Video and Audio	3
MATE3008	Mathematics for Social Sciences	3
	Total	18

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
HIST3245	History of Puerto Rico – Compendium	3
ADMI3005	Administrative Theory	3
COMU4007	Principles of Computer Animation	3
COMU4126	Audio Design and Post-Production	3
XXXX	Course in the area of Social Sciences	3
	Total	15

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
COMU4008	Production of Interactive Multimedia	3
	or	
COMU4007	*Principles of Computer Animation*	
COMU4115	Writing, Rhetoric and Digital Media	3
XXXX	Course in Humanities	3
XXXX	Elective in Communication	3
XXXX	Elective in liberal arts	3
XXXX	Elective in liberal arts	3
	Total	18

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
COMU4128	Ethic, Law and Communication	3
COMU4326	Research in Communication	3
XXXX	Course in the area of Humanities	3
XXXX	Course in the area of Social Sciences	3
XXXX	Elective in Communication	3
XXXX	Elective on liberal arts	3
	Total	18

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
COMU4336	Supervised Practice in Communication	3
XXXX	Elective in Communication	3
XXXX	Course in the area of Humanities	3
XXXX	Free elective	3
XXXX	Elective on liberal arts	3
	Total	15

Two of the following convergence courses:

COMU4007	Principles of Computer Animation
COMU4008	Production of Interactive Multimedia
COMU4009	Animation and 3-D Graphics

Spanish courses that the student can choose from:

ESCO3001	Psychology of Written Communication I
ESCO3002	Psychology of Written Communication II
ESPA3201	Introduction to Literary Genres I
ESPA3202	Introduction to Literary Genres II
ESPA3211	Introduction to Spanish Literature I
ESPA3212	Introduction to Spanish Literature II
ESPA4221	Hispanic American Literature I
ESPA4222	Hispanic American Literature II
ESPA4231	Puerto Rican Literature I
ESPA4232	Puerto Rican Literature II

Social Sciences courses that the student can choose from:

ANTR3005	Anthropology Principles
CIPO3011	Principles and Problems of Political Sciences
CIPO3025	Political System of the United States
CIPO3035	Political System of Puerto Rico
CIPO3065	International Relations
CIPO3125	History of Diplomacy
CIPO4016	Government and Politic of Middle East
CIPO4065	Public International Law
CIPO4095	Politic Systems of the Caribbean
CISO3056	Social Dimensions and Consequences of Technology
CISO3085	Society and Culture of Puerto Rico
CISO3155	Fundamentals of Statistical Reasoning
CISO4042	Applied Statistical Inference
ECON3005	Introduction to Economy
GEOG3016	World's Geography
GEOG3045	Geography of the Population
GEOG3155	Elements of Geography
GEOG3165	Geography of Puerto Rico
INAS3021	Fundamentals of Participatory Action Research
INAS3022	Introduction to Communitarian Processes in Participatory Action Research
INAS4000	Programs and Projects Evaluation
INAS4045	Communitarian Development and Organization in the Caribbean
INTD3308	Problems of the Urban Environment
PSIC1006	Human Relations in the Industry
PSIC3005	General Psychology
PSIC3006	Social Psychology
PSIC3007	Personality Development
PSIC3048	Group Dynamics
SOCI3005	Criminology
SOCI3055	Juvenile Delinquency and its Prevention
SOCI3245	Principles of Sociology
SOCI3247	Sociological Theories
SOCI3265	Social Research Methods and Techniques
SOCI3315	Sociology of the Family

Humanity courses that the student can choose from:

ARTE3111	Drawing I
ARTE3112	Drawing II
ARTE3116	History of Art – Compendium
ARTE3117	Basic Painting (2 credits)
ARTE3118	Art in Puerto Rico
ARTE3002	Art in the Caribbean
ARTE3415	Anatomic painting
ARTE3435	Theory of Color
FILO3003	Introduction to Philosophy
FILO3005	Introduction to Ethics

FILO3240	Puerto Rican Philosophical Thought
FILO3241	Modern Philosophy in the Hispanic Caribbean
FILO3242	The Philosophy of History
FILO3243	Philosophy of Language
FILO3244	Asian Philosophies in the Caribbean
FILO4031	Logic I
FILO4471	Philosophy of Science I
FILO4495	Introduction to Philosophical Anthropology
FRAN3191	Elementary French I
FRAN3192	Elementary French II
FRAN3193	Intermediate French
FRAN3201	Functional French I
FRAN3202	Functional French II
GEOG3101	Geography of the Insular Caribbean
HIST3001	Theory of History
HIST3111	History of United States I
HIST3112	History of United States II
HIST3211	Hispanic American History I
HIST3212	Hispanic American History II
HIST3235	History of Science
HIST3241	History of Puerto Rico I
HIST3242	History of Puerto Rico II
HIST3247	History of America
HIST3505	Contemporary Caribbean History
HIST4001	History of Revolutions
HIST4002	History of the Relations in Metropolis and Colonies
HIST4101	History of Puerto Rico in the Twentieth Century
HIST4255	Contemporary History
HUMA3010	Study Travel to Europe (6 credits)
HUMA3101	Western Culture I
HUMA3102	Western Culture II
HUMA3201	Western Culture III
HUMA3202	Western Culture IV
HUMA3230	History of Religions
HUMA3515	Travel to Pre-Hispanic and Colonial Central America
HUMA3601	Humanistic Investigation and Technology
HUMA3602	Mythology, Archetypes and Religion in the Caribbean
HUMA3603	Africa in the Caribbean
LITE3001	Caribbean Literature I
LITE3002	Caribbean Literature II
LITE3011	Modern Literature
LITE3012	Contemporary Literature
MUSI3051	Reading and Dictation I
MUSI3052	Reading and Dictation II
MUSI3145	Introduction to Musical Art Repertoire
MUSI3235	Music Appreciation
MUSI3501	Popular Music of the Caribbean
TEAT3011	Acting I
TEAT3012	Acting II
TEAT3031	Diction I
TEAT3032	Diction II
TEAT3151	Theatrical Movement I
TEAT3152	Theatrical Movement II
TEAT3191	Introduction to Theatrical Production I
TEAT3192	Introduction to Theatrical Production II
TEAT3201	Scenic Design

Liberal arts courses that the student can choose from:

Education

EDFU3001	Human Growth and Development I
EDFU3002	Human Growth and Development II
EDFU3007	Social Foundations of Education
EDFU4019	Philosophical Fundaments of Education

Spanish

ESCO3001	Psychology of Written Communication I
ESCO3002	Psychology of Written Communication II
ESPA3201	Introduction to Literary Genres I
ESPA3202	Introduction to Literary Genres II
ESPA3211	Introduction to Spanish Literature I
ESPA3212	Introduction to Spanish Literature II
ESPA4221	Hispanic American Literature I
ESPA4222	Hispanic American Literature II
ESPA4231	Puerto Rican Literature I
ESPA4232	Puerto Rican Literature II

English

INGL3001	British Literature I
INGL3002	British Literature II
INGL3103	Intermediate English I
INGL3104	Intermediate English II
INGL3201	Grammar, Composition and Analytical Reading I
INGL3202	Grammar, Composition and Analytical Reading II
INGL3221	Introduction to Literature I
INGL3222	Introduction to Literature II
INGL3231	Advanced Expository Prose Writing I
INGL3232	Advanced Expository Prose Writing II
INGL3252	American Literature II
INGL3269	English Grammar Skills Development
INGL4067	Special Topics of American Literature
INGL4206	Modern English Grammar: Morphology and Syntax
INGL4215	Contemporary Novel
INGL4235	Structural and Syntactic Analysis of English and Spanish
INGL4325	Language Acquisition
INGL4326	Children's Literature
INGL4327	Adolescents' Literature
INGL4328	Linguistics and Reading
INGL4329	Assessment and Evaluation of English Language
INGL4345	Language and Culture

Social Sciences

ANTR3005	Principles of Anthropology
CIPO3011	Principles and Problems of Political Sciences
CIPO3025	Political System of United States
CIPO3035	Political System of Puerto Rico
CIPO3065	International Relations
CIPO3125	History of Diplomacy
CIPO4016	Government and Politics of Middle West
CIPO4065	Public International Law
CIPO4095	Political Systems of the Caribbean
CISO3056	Social Dimensions and Consequences of Technology
CISO3085	Society and Culture of Puerto Rico
CISO3155	Fundamentals of Statistical Reasoning
CISO4042	Applied Statistical Inference
ECON3005	Introduction to Economy
GEOG3016	World's Geography

GEOG3045	Geography of Population
GEOG3155	Elements of Geography
GEOG3165	Geography of Puerto Rico
INAS3021	Fundamentals of Participatory Action Research
INAS3022	Introduction to Communitarian Processes in Participatory Action Research
INAS4000	Programs and Project Evaluation
INAS4045	Communitarian Development and Organization in the Caribbean
PSIC1006	Human Relations in the Industry
PSIC3005	General Psychology
PSIC3006	Social Psychology
PSIC3007	Personality Development
PSIC3048	Group Dynamic
SOCI3005	Criminology
SOCI3055	Juvenile Delinquency and its Prevention
SOCI3245	Principles of Sociology
SOCI3247	Sociological Theories
SOCI3315	Sociology of the Family

Humanities

ARTE3111	Drawing I
ARTE3112	Drawing II
ARTE3115	Art Appreciation
ARTE3116	History of Art – Compendium
ARTE3117	Basic Painting (2 credits)
ARTE3118	Art in Puerto Rico
ARTE3435	Theory of Color
FILO3003	Introduction to Philosophy
FILO3005	Introduction to Ethics
FILO4031	Logic I
FILO4471	Philosophy of Science I
FILO4495	Introduction to Philosophical Anthropology
FRAN3191	Elementary French I
FRAN3192	Elementary French II
FRAN3193	Intermediate French
FRAN3201	Functional French I
FRAN3202	Functional French II
HIST3111	History of United States I
HIST3112	History of United States II
HIST3211	Hispanic American History I
HIST3212	Hispanic American History II
HIST3241	History of Puerto Rico I
HIST3242	History of Puerto Rico II
HIST3247	History of America
HIST3505	Contemporary Caribbean History
HIST4255	Contemporary History
HUMA3010	Study Travel to Europe (6 credits)
HUMA3101	Western Culture I
HUMA3102	Western Culture II
HUMA3201	Western Culture III
HUMA3202	Western Culture IV
LITE3012	Contemporary Literature
MUSI3145	Introduction to Musical Art Repertoire
MUSI3235	Music Appreciation
TEAT3011	Acting I
TEAT3012	Acting II
TEAT3031	Diction I
TEAT3032	Diction II
TEAT3151	Theatrical Movement I
TEAT3152	Theatrical Movement II
TEAT3191	Introduction to Theatrical Production I
TEAT3192	Introduction to Theatrical Production II
TEAT3201	Scenic Design

Biology

CIBI3001	Fundamentals of Biology I
CIBI3002	Fundamentals of Biology II
INTD3110	Woman: Sciences from the Gender Perspective

Physics

ASTR3001	Elementary Astronomy I
ASTR3002	Elementary Astronomy II
CIFI3001	Introduction to Physical Sciences I
CIFI3002	Introduction to Physical Sciences II

Mathematics

COMP3005	Introduction to the Use of Computers
MATE3001	Elementary Mathematics
MATE3008	Mathematics for Social Sciences
MATE3015	Elementary Statistics
MATE3018	Pre-Calculus and Analytical Geometry
MATE3041	Introduction to Mathematics I
MATE3042	Introduction to Mathematics II
MECU3031	Quantitative Methods for Business Administration I
MECU3032	Quantitative Methods for Business Administration II

Communication

COMU3006	Introduction to Photography
COMU4116	Film History and Language

COURSE DESCRIPTION

COMU-3006. INTRODUCTION TO PHOTOGRAPHY. Credits: 3. Lecture hours per week: 4. Prerequisite(s): None. Corequisite(s): None. This course studies the basic principles of photography through the digital camera and its historical background until the present. Study subjects include: traditional and digital photography, camera as a communication instrument, photography in the communication field, use of technologies and software, traditional and current processes, optic and lenses, theories and concepts about composition, design, lightning, depth of field, resolution and storage, photography as art and the different branches of photography, including advertising photography. The teaching methodology guides the student to exploration, analysis and discussion of information relevant to the learning concepts, theories, tendencies, techniques and skills. Guided and individualized practices are offered in the use of photograph equipment, use of computers and software related to the course, the implementation of procedures, as well as in portfolio elaboration. *Note: Two lecture hours and two laboratory hours per week.*

COMU-3008. INTRODUCTION TO THE STUDY OF COMMUNICATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The course is a requirement for students of the Bachelor of Arts with a Major in Communication Technology. It is also offered as an elective for students from other bachelors. Presents a history of the study of human communication. Conceptions of perception, codification, meaning,

persuasion, rhetoric, propaganda, information, and communication are analyzed and evaluated. Elements of the communication process are distinguished, and several communication models are evaluated. Communication relations are compared with languages, technology, education, ideology, culture, and society.

COMU-3009. FUNDAMENTALS OF WRITING FOR AUDIOVISUAL MEDIA. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course is a requirement for the area of Audio and Video of the Bachelor of Arts with a Major in Communication Technology and, it is also offered as a free elective for students of other bachelors. Discusses and practices different writing techniques for the media. Analyzes qualities, characteristics, and formats of mass communication media. Discusses the content of several radio and television programs to point out concerns of ethical and legal nature to be considered when writing for the media. Students are motivated to be more careful and responsible with written, auditory, and visual languages.

COMU-3010. INTRODUCTION TO GRAPHIC DESIGN. Credits: 3. Lecture hours per week: 5. Prerequisite(s): None. Corequisite(s): None. The course is a requirement for students from the area of Graphic Design of the Bachelor Program in Communication Technology. Studies the theoretical and practical foundations of graphic design and discusses and applies the fundamental guides of esthetical order, the analysis of graphic design elements and the general rules for their application. It is noted the importance of color as a graphic resource and relates the student with its application on different graphic communication media. It emphasizes the practical phase, critical study, and the design of simple graphic communication media. Skills to facilitate and accelerate the process of graphic communication are developed. *Note: Two lecture hours and three laboratory hours per week.*

COMU-3018. FUNDAMENTALS OF VIDEO PRODUCTION. Credits: 3. Laboratory hours per week: 4. Prerequisite(s): COMU-3009, COMU-3118. Corequisite(s): None. The course is required for students in the Audio and Video sequence of the BA Major in Communication Technologies. It serves as an introduction to television production processes and to the theoretical aspects of television. It discusses the elements of production and their application to the production of videos in different formats. It also explores the theory and practice of television management, operation of video equipment, audio, and lighting.

COMU-3116. DIGITAL GRAPHIC DESIGN. Credits: 3. Lecture hours per week: 4. Prerequisite(s): COMU-3010. Corequisite(s): None. This course is a requirement for students in the emphasis area of Graphic of the Bachelor in Arts with a Major in Communication Technology. Introduction to computer technology and to the use of programs for original designs elaboration. Analysis and application of the elements and graphic design principles on the creation and production of graphic material. *Note: Two lecture hours and two laboratory hours per week.*

COMU-3118. PRINCIPLES OF ACOUSTICS AND STUDIO PRODUCTION. Credits: 3. Lecture hours per week: 4. Prerequisite(s): COMU4115. Corequisite(s): None. This course is a requirement for Audio and Video sequence in the Bachelor of Arts with a Major in Communication Technology. It is addressed to the creative design of sound to be applied to the different audiovisual media. Emphasis will be given to the different techniques for the design and postproduction of studio recordings, production of special effects and music. Also, students may master those recording techniques using specialized equipment. *Note: Two lecture hours and two laboratory hours per week.*

COMU-3119. GRAPHIC PRODUCTION. Credits: 3. Lecture hours per week: 4. Prerequisite(s): COMU-3006, COMU-3116. Corequisite(s): None. This course is a requirement for the student in the area of Graphic Design of the Bachelor of Arts with Major in Communication Technology. A conceptual and practical framework is provided for the making of traditional and electronic graphic material. Analyzes the process of planning, design and production of graphic design and the application of new technologies to graphic arts. Emphasis will be given to project production of high complexity, such as the making of a website, a magazine or newspaper and an electronic catalog or portfolio. *Note: Two lecture hours and two conference hours per week.*

COMU-3120. ADVANCED VIDEO AND AUDIO PRODUCTION. Credits: 3. Lecture hours per week: 4. Prerequisite(s): COMU-3018, COMU-3118. Corequisite(s): None. The course is a requisite for students in the area of Video and Audio of the Bachelor in Arts with Major in Communication Technology. This course deepens in the aspects of planning, preparation, production, and post-production of several video program formats as well as in other technical aspects, especially in edition techniques. Also, the course provides experience in the production of different types of television programs. The students will master television production techniques through demonstration and the intensive management of the equipment in the studio and exteriors. Emphasis will be given in the processes of pre-production, production and post-production of video and the audio for it. It goes deeper into the techniques of post-production on analog and digital systems, as well as in the evaluation and criticism of television programming. *Note: Two lecture hours and two laboratory hours per week.*

COMU-3207. TRADITIONAL AND DIGITAL MEDIA LITERACY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMU-3008 o CISO-3122. Corequisite(s): None. This course is a requisite for students of the Bachelor in Arts with Major in Communication Technology. Also, it is offered as an elective for students of other majors. It explores the influence of communication media in society. It analyzes how the messages of the communication media, particularly digital ones, influence our thinking and feelings at an individual and collective level. Active and critical forms of interpreting media messages are identified and applied, with emphasis in advertising messages. Finally, the national and international communication flows are analyzed. It emphasizes the development of writing skills.

COMU-4007. PRINCIPLES OF COMPUTER ANIMATION. Credits: 3. Lecture hours per week: 5. Prerequisite(s): COMU-3120 o COMU-3119. Corequisite(s): None. This course is one of the options for the requirements of convergence in new technologies of the Bachelor of Arts with Major in Communication Technology. Studies the basic principles of animation and its historical background until today. Study subjects include art of animation history, animation in theatre and television, traditional and electronic animation, script and "*storyboard"* of animation, programs used in industry, elements of graphic design in an animation, audio, and ethical considerations of animation. Emphasizes practices aimed at the use of programs and produces a simple project of bi-dimensional (2-D) animation. *Note: Two lecture hours and three laboratory hours per week.*

COMU-4008. INTERACTIVE MULTIMEDIA PRODUCTION. Credits: 3. Lecture hours per week: 5. Prerequisite(s): None. Corequisite(s): None. This course is one of the options for the convergence courses requirements in new technologies of the Bachelor in Communication Technology. Introduction to the concept of multimedia and its applications in the production of media and materials for the area of communication and informatics. Analysis and uses of different programs for multimedia and the implementation of basic principles of design in the production of interactive multimedia. Also, includes the study of several multimedia production models, as well as written conceptualization and instructional design of multimedia productions. *Note: Two lecture hours and three laboratory hours per week.*

COMU-4009. 3-D ANIMATION AND GRAPHICS. Credits: 3. Lecture hours per week: 5. Prerequisite(s): COMU-4007 and COMU-4008. Corequisite(s): None. This course is one of the options for the convergence courses requirement in new technologies of the Bachelor of Arts with Major in Communication Technology. Advanced principles of animation are studied. Study subjects include programming languages for animation, fundamentals of 3-D computer animation, and the discussion of more complex problems. Guided practices are offered in the use of software. Guided practices in the use of three-dimensional animation software (3-D) are emphasized. A simple 3-D animation project is developed. *Note: Three lecture hours and two laboratory hours per week.*

COMU-4010. ADVANCED PHHOTOGRAPHY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMU-3006. Corequisites): None. Elective course for students of the Bachelor of Arts with Major in Communication Technology. Also, is an elective for students of other programs who have approved COMU-3006 – Introduction to Photography. The course emphasizes analysis, processes applications, creative and commercial techniques in 35mm digital format. The following study subjects are presented: photojournalism, photographic documentary, and advertising photography. Students may compare photographic language with other languages used in the communication media and discern it from visual, auditory, and written languages. The teaching methodology used guides the student to the exploration, analysis, and discussion of relevant information for the learning of concepts, theories, tendencies, and skills. Guided practices in the use of photographic equipment and materials and the opportunity of making a portfolio are offered.

COMU-4115. WRITING, RETHORIC AND DIGITAL MEDIA. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3006. Corequisite(s): None. The course is required for the Bachelor of Arts with Major in Communication Technology. Is a specialized course and requires advanced knowledge in graphic production or video and audio production. Through methodologies of research and report, students will identify and apply the basic skills and knowledge of drafting, written rhetoric, and digital rhetoric; will evaluate the use of written communication and its interaction with the coding of static image, moving image and of the sound. It is expected that students will be able to integrate text, images, video, and sound to a multimedia production, combining the senses of purpose, situation, and audience, framed in the rhetorical concept.

COMU-4116. FILM HISTORY AND LANGUAGE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The course is an elective for students of the Bachelor in Arts with a Major in Communication Technology. It is also offered as a free elective for students of other bachelors. Students explore the different perspectives and histories of film. Film perspectives: film as a reality; film as an articulation of reality and fantasy. Film histories: film as technological media; film as art; film as business; film as culture and entertainment; and film as history. Students also will appreciate a sample of world film, with emphasis in Puerto Rican and Latin American film.

COMU-4125. WRITING AND STYLE IN JOURNALISM. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3006. Corequisite(s): None. The course is a requirement for students of the Bachelor of Arts with a Major in Communication Technology. Also, it is offered as an elective for students of other bachelors. A history of the study of human communication is presented. Analyzes and evaluates conceptions of perception, coding, significance, persuasion, rhetoric, propaganda, information, and communication. Elements of the communication process are distinguished, and different models of communication are evaluated. Compares the communication relations with languages, technology, education, ideology, culture, and society.

COMU-4126. AUDIO DESIGN AND POST-PRODUCTION. Credits: 3. Lecture hours per week: 4. Prerequisite(s): COMU-3118. Corequisite(s): None. This course is an elective for students of the Bachelor of Arts with Major in Communication Technology and is targeted at the creative design of sound to be applied to the different audiovisual media. Emphasizes the different techniques for the design and post-production of studio recordings, synchronism (lips-sync), and production of special effects and of music. Students will be able to master those techniques of recording using specialized equipment. *Note: One lecture hour and two laboratory hours per week.*

COMU-4127. EDUCATIONAL COMMUNICATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMU-3008, COMU-3120 o COMU-3119. Corequisite(s): None. This course is an elective for students of the Bachelor of Arts with a Major in Communication Technology. The course is directed at preparing students in the uses and applications of communication and information theories and media in an educational environment, whether in the industry, personnel training or in solving specific problems. Studies the instructional models compared to the communication models, the impact of communication media in the development of the educational process, the design, development and evaluation of instructional production systems and production media of high technology, applicable to private industry and to public sector. Guided practices in the use of technological equipment and the opportunity of creating projects using the available forefront technologies are offered.

COMU-4128. ETHICS, LAW AND COMMUNICATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMU-3008, HUMA-3022, COMU-3207. Corequisite(s): None. The course is a requisite for students of the Bachelor Program in Arts with a Major in Communication Technology. Also, it is offered as an elective for students of other bachelors. Studies how human beings have used morals, ethics, and law to socially communicate throughout history. From this history, the main laws and regulations related to communication media in Puerto Rico are analyzed. Once established the historical and legal background, they are analyzed using the case method and the professional practices (practices related to the gathering of information, content production or messages diffusion) in communication media in the following areas: truth; intimacy (including the right to a fair trial); sources confidentiality; conflict of interest; marketing; antisocial behavior; pornography; social justice; stereotypes; popular culture: esthetical and moral; copyrights and Internet.

COMU-4129. INTEGRATED MARKETING COMMUNICATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMU-3119 o COMU-3120. Corequisite(s): None. The course is a recommended elective for students in the Bachelor of Arts with a Major in Communication Technology. The course is a specialized one and requires advanced knowledge in graphic production or in video and audio production. Through methodologies of research and report, students will identify and apply the skills and basic knowledge of marketing, publicity and public relations; in addition, will evaluate the planning and implementation of Integrated Marketing Communication campaigns from private companies, governmental agencies and non-profit organizations.

COMU-4326. RESEARCH IN COMMUNICATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMU-3008, COMU-3207. Corequisite(s): None. This is one of the two options for complying with the requirement of an inclusive course of the Bachelor Program in Arts with Major in Communication Technology. The student will apply concepts and methods of the courses from the Bachelor to develop research projects related with interpersonal, group, organization, or massive communication. The course will give emphasis to the research of production and consumption of messages through the communication media. In the context of project research design, the student will explore the philosophical concepts and the theories that sustain several social research perspectives.

COMU-4336. SUPERVISED PRACTICE IN COMMUNICATION. Credits: 3. Lecture hours per week: 10. Prerequisite(s): COMU-4008, COMU-4009 o COMU 4007. Corequisite(s): None. This is one of the two options for complying with the requirement of an inclusive course of the Bachelor Program in Arts with a Major in Communication Technology. Its approach integrates the competencies developed in the program, through supervised practice in a work environment. Offers the students learning experiences in the design and production of material for video, graphics, and audio, allowing them to apply theory and contemplate the Professional Communication processes. The learning assessment will allow to refine the competencies, permitting products of quality, esthetical sense, compromise, cultural value, and ethical conduct. In

addition to the practice hours, students will attend seminars weekly in order to share experiences, develop a professional portfolio and explore their professional development. *Note: Two lecture hours and eight practice hours per week.*

FACULTY

DUEÑAS GUZMÁN, MAXIMILIANO. *Full Professor*, *PhD,* 2003, University of Massachusetts, United States.

PACHECO GARCÍA, MARCIA. *Associate Professor, PhD,* 2016, Center for Advanced Studies of Puerto Rico and the Caribbean, Puerto Rico.

PIÑERO CÁDIZ, HÉCTOR R. *Full Professor PhD,* 2016*,* Center for Advanced Studies of Puerto Rico and the Caribbean, Puerto Rico

RAMÍREZ MUÑOZ, MIRIAM. *Full Professor, PhD,* 2015, Pontifical University of Salamanca, Spain.

BONILLA REYES, MARIBEL. *Instructor, MA,* 2012*,* Atlantic University College, Guaynabo, Puerto Rico.

Education

Website: http://www.upr.edu/humacao/dept-educ/
e-mail: educ.uprh@upr.edu
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History and Objectives

The Bachelor in Elementary Education with major in Primary Level and Special Education prepares elementary school teachers with the knowledge, methods, and techniques necessary for an excellent performance on primary level in public and private schools of Puerto Rico. This program was established in 1978 with the objective of helping in the Puerto Rico nation's development.

Also, prepares the future teacher to work with students presenting exceptional characteristics within the regular groups, as well as with students with limitations that require service of different learning locations and environments. The graduate will be able to perform in several work scenarios which are characterized by diversity and socio-educational dynamism.

Among its installations is the Preschool Demonstrative Center (CDPRE, by its Spanish acronym). The services offered by this Center are aimed at the integral development of children between three and five years of age with severe problems of speech-language (special education) and another group of children of five years in a regular Kindergarten that serve as a model and as a less restrictive alternative. The CDPRE serves as a clinical scenario for students of Education, other UPRH departments and other campuses of the System, as well as private universities. Also, serves as a laboratory for students making field observations and assignments for their courses. In addition to the educational services provided by teachers and teachers' assistants in the CDPRE, the Preschool group receives related services by the Puerto Rico's Department of Education (DEPR, by its Spanish acronym), such as: speech pathology, psychology, occupational therapy and physical therapy, depending on the students' particular needs. The UPRH offers social work services to the Center. Children, preschoolers as well as those in Kindergarten, also receive the DEPR school cafeteria services and participate jointly in social, recreational, and cultural activities of the Center and the University. The education and related services are free.

Academic Program

The Department offers a study program that leads to the following academic degree: *Bachelor in Elementary Education with a Major in Primary Level and Special Education.* Prepares and retrains teachers to work in the elementary level (kindergarten up to third grade) of the public and private system. In addition, the program has a Special Education component to capacitate teachers in the areas of special conditions.

In 2009, the Bachelor in Elementary Education with a major in Primary Level and Special Education was recognized by the *National Association for the Education for Young Children (NAEYC)* and, subsequently, in 2010 was accredited by the *National Council for Accreditation of Teacher Education (NCATE).*

In 2021, the Bachelor's Degree in Elementary Education with a Concentration in the Primary Level and Special Education, offered through Distance Learning, was approved under Certification Number 2021-2022-31 of the Governing Board.

BACHELOR IN ELEMENTARY EDUCATION WITH A MAJOR IN PRIMARY LEVEL AND SPECIAL EDUCATION, ONLINE

(for students admitted from August 2025)

Curricular Sequence

Summary of credits:

General Education requirements.....75
Major requirements.....50
Recommended electives.....6
Free electives.....6
Total.....137

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I ***or***	3
INGL3103	*Intermediate English I*	
HUMA3021	Cultural Manifestations of Western Man I	3
CIBI3001	Fundamentals of Biology I	3
CISO3121	Introduction to Social Sciences I	3
ARTE3115	Art Appreciation	2
	Total	17

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II ***or***	3
INGL3104	*Intermediate English II*	
HUMA3022	Cultural Manifestations of Western Man II	3
CIBI3002	Fundamentals of Biology II	3
CISO3122	Introduction to Social Sciences II	3
MUSI3235	Music Appreciation	2
	Total	17

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3201	Introduction to Literary Genres I	3
INGL3021	Oral and Written English I	3
MATE3131	Arithmetic and Algebra Fundamental Concepts for Elementary Level Teachers	3
HIST3241	History of Puerto Rico I	3
EDFU3045	Participant Observation in the Classroom	2
EDFU3001	Human Growth and Development I	3
	Total	17

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3006	Writing and Composition	3
INGL3022	Written and Oral English II	3
MATE3132	Geometry, Probability and Statistical Concepts for Elementary Level Teachers	3
HIST3242	History of Puerto Rico II	3
EDFU3007	Social Foundations of Education	3
EDFU3002	Human Growth and Development II	3
	Total	18

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
EDPE3006	Methodology of Teaching Social Studies in Elementary School K-3	3
EDPE4075	Creative Experiences in Plastic Arts, Music and Theater for Elementary Level K-3	3
EDES4006	Nature and Needs of the Exceptional Student	3
EDFU4019	Philosophical Fundaments of Education	3
EDPE3002	Language Arts in Elementary School	3
XXXX	Free elective	3
	Total	18

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
EDPE3011	Teaching Mathematics in the Elementary Level K-3	3
EDES4005	Emotional Disturbances in Children and Adolescents	3
EDPE4007	Children's Literature	3
EDFU3028	Family as an Agent of Social Change	3
EDPE3029	Teaching of Physical Education in the Primary Level	2
HIST3111	History of United States I	3
	Total	17

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
EDPE4078	Integration of the Computer as Technology for Education	3
EDFU3026	Process of Value Formation	3
EDPE3041	Methodology in the Teaching of Science in Elementary School K-3	3
EDPE3031	Teaching of Reading and Writing in Primary Level	3
XXXX	EDES recommended elective	3
XXXX	EDES recommended elective	3
	Total	18

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
EDPE4095	Teaching in Kindergarten	3
EDPE4025	Practice Teaching in Elementary School	6
EDPE3057	Diagnostic and Evaluation of Learning	3
XXXX	Free elective	3
	Total	15

BACHELOR IN ELEMENTARY EDUCATION WITH A MAJOR IN PRIMARY LEVEL AND SPECIAL EDUCATION

Curricular Sequence

Summary of credits:

General Education requirements.....75
Major requirements.....50
Recommended electives.....6
Free electives.....6
Total.....137

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I ***or***	3
INGL3103	*Intermediate English I*	
HUMA3021	Cultural Manifestations of Western Man I	3
CIBI3001	Fundamentals of Biology I	3
CISO3121	Introduction to Social Sciences I	3
ARTE3115	Art Appreciation	2
	Total	17

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II ***or***	3
INGL3104	*Intermediate English II*	
HUMA3022	Cultural Manifestations of Western Man II	3
CIBI3002	Fundamentals of Biology II	3
CISO3122	Introduction to Social Sciences II	3
MUSI3235	Music Appreciation	2
	Total	17

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3201	Introduction to Literary Genres I	3
INGL3021	Oral and Written English I	3
MATE3131	Arithmetic and Algebra Fundamental Concepts for Elementary Level Teachers	3
HIST3241	History of Puerto Rico I	3
EDFU3045	Participant Observation in the Classroom	2
EDFU3001	Human Growth and Development I	3
	Total	17

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3006	Writing and Composition	3
INGL3022	Written and Oral English II	3
MATE3132	Geometry, Probability and Statistical Concepts for Elementary Level Teachers	3
HIST3242	History of Puerto Rico II	3
EDFU3007	Social Foundations of Education	3
EDFU3002	Human Growth and Development II	3
	Total	18

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
EDPE3006	Methodology of Teaching Social Studies in Elementary School K-3	3
EDPE4075	Creative Experiences in Plastic Arts, Music and Theater for Elementary Level K-3	3
EDES4006	Nature and Needs of the Exceptional Student	3
EDFU4019	Philosophical Fundaments of Education	3
EDPE3002	Language Arts in Elementary School	3
XXXX	Free elective	3
	Total	18

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
EDPE3011	Teaching Mathematics in the Elementary Level K-3	3
EDES4005	Emotional Disturbances in Children and Adolescents	3
EDPE4007	Children's Literature	3
EDFU3028	Family as an Agent of Social Change	3
EDPE3029	Teaching of Physical Education in the Primary Level	2
HIST3111	History of United States I	3
	Total	17

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
EDPE4078	Integration of the Computer as Technology for Education	3
EDFU3026	Process of Value Formation	3
EDPE3041	Methodology in the Teaching of Science in Elementary School K-3	3
EDPE3031	Teaching of Reading and Writing in Primary Level	3
XXXX	EDES recommended elective	3
XXXX	EDES recommended elective	3
	Total	18

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
EDPE4095	Teaching in Kindergarten	3
EDPE4025	Practice Teaching in Elementary School	6
EDPE3057	Diagnostic and Evaluation of Learning	3
XXXX	Free elective	3
	Total	15

Free electives:

Students will need to take **six (6) credits on free electives** in any area. The Department offers other courses in Education, which can be taken as free electives:

Code	Course	Crs.
EDFU3008	Educational Implications of Economy Problems in Puerto Rico	3
EDFU3017	Tests of Assessment and Evaluation of Learning	3
EDFU3046	Teaching of Health in the Elementary School	3
EDFU4007	Principles of Research in Education	3
EDPE3036	Teaching of English at Primary Level	3

Elective credits in Special Education are six (6), which will be counted as **recommended electives.** Students will need to select two (2) of the following courses:

Code	Course	Crs.
EDES4015	Nature and Needs of Children with Intellectual Disability	3
EDES4016	Methodology and Curriculum of Children with Intellectual Disability	3
EDES4025	Teaching the Child with Speech Deficiencies	3
EDES4026	Teaching the Child with Hearing Deficiencies	3
EDES4028	Nature and Needs of the Child with Visual Deficiencies	3
EDES4036	Sensory Functions and Their Educational Implications	3
EDES3006*	Diagnosis and Correction of Reading and Writing Deficiencies	3
EDES3205*	Technological Assistance in Special Education	3

Courses of physical education can also be taken as **free electives:**

Code	Course	Crs.
EDFI3028	Fundamentals of Swimming	2
EDFI3029	Judo	2

EDFI3046	Basketball	3
EDFI3105	Simple Organization Games	2
EDFI3355	Skills and Fundamentals of Gymnastics and *Softball*	2
EDFI3451	Tennis	2
EDFI3625	Baseball and Volleyball	2

Certification in Special Education. With the special education courses, students of our program may complete the Teacher Certification in Special Education, 18 credits. *Required courses for the Certification in Special Education.

COURSE DESCRIPTIONS

SPECIAL EDUCATION

EDES-3006. DIAGNOSIS AND CORRECTION OF READING AND WRITING DEFICIENCIES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES-4006. Corequisite(s): None. This course offers students the necessary competencies to teach, diagnose and correct deficiencies in a student's reading and writing, when presented. Examines the methods, techniques and strategies that meet the specific needs of this population, taking in consideration the wording of the goals and objectives of the Individualized Educational Program (PEI, by its Spanish acronym). Also, students are exposed to planning, teaching-learning materials, assistive technology equipment, and learning evaluation based on the theoretical and practical fundaments of the reading and writing teaching process at the elementary level.

EDES-3205. TECHNOLOGICAL ASSISTANCE IN SPECIAL EDUCATION. Credits 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The course includes the acquisition of knowledge pertaining to the world of technological assistance and the development of the necessary skills in order for the future teacher to facilitate the success of the exceptional student in the classroom. It will emphasize the different technological tools created to promote this student's learning and the strategies that could be used for their maximum development. This course is necessary for the certification of Special Education teachers.

EDES-4015. NATURE AND NEEDS OF CHILDREN WITH INTELLECTUAL DISABILITY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES-4006. Corequisite(s): None. Basic course of psychology and principles of education for the child with intellectual disability. Offers the teacher the necessary background for a better understanding of the educable, trainable, and dependent child with intellectual disability. Among the study subjects are: 1) the use of psychometrics tests to diagnose, clarify and predict conduct of the intellectually disabled on educative and social situations; 2) the meanings, nature, causes and types of intellectual disabilities and prevention; 3) the educational programs and the rehabilitation of the intellectually disabled; and 4) orientation to their parents.

EDES-4016. METHODOLOGY AND CURRICULUM OF CHILDREN WITH INTELLECTUAL DISABILITY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES-4006, EDES-4015. Corequisite(s): None. Students will have to take this course before the practice. It offers the student experience on the adequate techniques and methods for teaching the intellectually disabled and educable children on the different curriculum areas and the application of the psychological theories and laws of learning in their teaching. Give emphasis to the study of the special curriculum, preparation of teaching materials, as well as to the diagnosis and individualization of teaching in the education of the intellectually disabled and educable children.

EDES-4025. TEACHING THE CHILD WITH SPEECH DEFICIENCIES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES-4006. Corequisite(s): None. General concepts and new tendencies in the education of the child with speech deficiencies. Relates these deficiencies with the child's conduct in the classroom and provides teachers with new techniques and materials in order to work with the academic achievement of this type of student.

EDES-4026. TEACHING THE CHILD WITH HEARING-DEFICIENCIES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES-4006. Corequisite(s): None. Seminar about the analysis of problems related with teaching the child with auditory deficiencies, analysis methods and techniques for developing the language in a hearing-impaired child; training in hearing and reading. Emphasis will be given to the implementation of practice in the teaching of hearing-impaired children.

EDES-4028. NATURE AND NEEDS OF THE CHILD WITH VISUAL DEFICIENCIES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES-4006. Corequisite(s): None. This course offers an introduction to sociological, psychological, and pedagogical problems caused to exceptional children by an impairment. The children's nature and the areas of need are emphasized and an introduction to the concepts, techniques and materials used when teaching the child with visual deficiency is offered. Part of the course includes visits to agencies, use of professional resources, observation and information structures about the visually impaired child, and supervision and prevention methods for visual problems in a regular classroom.

EDES-4036. SENSORY FUNCTIONS AND THEIR EDUCATIONAL IMPLICATIONS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES-4006. Corequisite(s): None. This course intends to offer a sensorial approach to general medical information, inferences, and case studies analysis, which will provide a practical presentation of clinical conditions, causes and diseases related to sensory difficulties which have educational

implications in the children and adolescents learning process.

PHYSICAL EDUCATION

EDFI-3028. FUNDAMENTALS OF SWIMMING. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The course is aimed at non-swimmers. Includes the explanation and demonstration and students will execute the basic movements in different styles of swimming. Also, includes historical facts about its origin.

EDFI-3029. JUDO. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course offers the student the basic auto-defense techniques through a series of progressive organized practices that emphasizes theory and execution simultaneously.

EDFI-3046. BASKETBALL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. In this course, the game's basics and fundamentals skills are explained and demonstrated. Also, includes the origin and history and an analysis and discussion of the system rules that govern the participation in this sport.

EDFI-3105. SIMPLE ORGANIZATION GAMES. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course includes an introduction to the scope of movements and their role in human development. Emphasizes the use of movement as a teaching instrument. Includes a laboratory in which the movement functions are analyzed. These activities are held at the Elementary Public School of the area.

EDFI-3355. SKILLS AND FUNDAMENTALS OF GYMNASTICS AND SOFTBALL. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Teaching of calisthenics exercises and gymnastics activities and their importance in the development and strengthening of the different body regions. Fundamental skills of softball and its importance as a recreational activity.

EDFI-3451. TENNIS. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course is designed for people who do not know how to play tennis. Includes explanation and demonstration and students will execute the basic movements in each game skills. Also, includes the origin and history and an analysis and discussion of the rule system that governs the participation.

EDFI-3625. BASEBALL AND VOLLEYBALL. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course includes an explanation and demonstration, and students will execute several basic movements in each skill of these games. Also, includes a brief historical data about their origin and history. In addition, the course analyzes and discusses the rules that govern participation and the game tactics.

FREE ELECTIVES

EDES-4201. PSYCHOSOCIAL NATURE AND FUNDAMENTS OF AUTISM AND THEIR IMPLICATION IN EDUCATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES 4006. Corequisite(s): None. The course is aimed to critically define and analyze the different concepts, characteristics, and classifications of autism. Emphasis will be given to the existing perceptions of the autism students and to recommendations about treatment through the psychosocial theories of Behaviorism and Cognitivism. Also, reference is made to their ethology and prevalence in modern times. As part of this course, research on aspects related to autism will be done. The course studies the educational implications of this type of exceptionality. Reference is made also to the inclusion as an alternative for placement and in technological support as an educational and therapeutic tool.

EDES-4202. COMMUNICATION METHODS FOR AUTISM STUDENTS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES 4006. Corequisite(s): None. The course is aimed to critically define and analyze the different concepts, characteristics, and classifications of autism. Emphasis will be given to the existing perceptions of the autism students and to recommendations about treatment through the psychosocial theories of Behaviorism and Cognitivism. Also, reference is made to their ethology and prevalence in modern times. As part of this course, research on aspects related to autism will be done. The course studies the educational implications of this type of exceptionality. Reference is made also to the inclusion as an alternative for placement and in technological support as an educational and therapeutic tool.

EDES-4203. BEHAVIOURAL MANAGEMENT OF THE AUTISM STUDENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES 4006. Corequisite(s): None. The course will analyze the different meanings of the concept behavioral management as part of the educational process of autism students. The principles of behavioral management will be examined from the different psychological theories point of views (Behaviorism, Cognitivism, Psychodynamic, and Humanism, among others). In this analysis, reference will be made to the educational implications that they have in the educational process of the autism student. As part of the process, research projects will be developed to evaluate recent findings in this field and to know how these contribute to ample the existing knowledge in the area of behavioral management of this type of student.

EDES-4204. EDUCATIONAL METHODOLOGY OF THE AUTISM STUDENT (PART I). Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES 4006. Corequisite(s): None. This course begins defining and analyzing the main concepts of the course and, later, the principles that

should apply the educational methodology for the autism student will be proposed. As part of the process, the methodology used for the typical student will be compared to the one recommended for this type of exceptionality. Also, the necessary competencies for the creation of strategies, methods, and techniques to educate the autism student will be develop, and they will be applied as a basis for planning and drafting the educational objectives. Research and observations of the autism student educational process will be made.

EDES-4205. EDUCATIONAL METHODOLOGY OF THE AUTISM STUDENT (PART II). Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDES 4006. Corequisite(s): None. This course is of practice type and begins analyzing the standards and expectations of the autism student education. Then, criteria to guide the methodology for the autism student will be established considering the standards, expectations, and the suggested criteria. Also, the strategies, methods, and techniques studied on the first part of the course will be analyzed. The content main part is the development of an educational plan and the presentation of a demonstrative class. With this educational plan, a worksheet with specifications to evaluate the performance of the student will be created. The critical reflection of the demonstrative classes made by the teacher candidates is an important part of this course.

EDFU-3017. TESTS OF ASSESSMENT AND EVALUATION OF LEARNING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDFU-3002. Corequisite(s): None. Fundamentals of diagnostic and improvement of teaching in the classroom through tests and assessments, statistical techniques with a study of the exams prepared for teachers of the intelligence tests (IQ tests) and other tests, and their use in the classroom.

EDFU-3046. TEACHING OF HEALTH IN ELEMENTARY SCHOOL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDFU-3001, EDFU-3002. Corequisite(s): None. The course will provide an overall view of the scholar health program to be developed from kindergarten through twelve grade on public and private schools of our island. The main emphasis will be in the scholar health program assigned to elementary level, this is from kindergarten up to sixth grade this course pretends to identify and analyze the basic health concepts that an elementary school teacher should have for a more effective teaching. Will emphasize in the development of attitudes.

EDFU-4007. PRINCIPLES OF RESEARCH IN EDUCATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course has the purpose of familiarizing students with the techniques and methods of scientific research. It will attempt to develop an incipient ability to identify problems and hypothesis and to interpret data related to the pedagogy field.

EDPE-3036. TEACHING OF ENGLISH AT PRIMARY LEVEL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3102. Corequisite(s): None. Study of principles that govern the teaching of English as a Second Language, methodology, procedures, and techniques used in the teaching at the primary level. Textbooks and other material used in Puerto Rico are studied. Daily plan and teaching learning process evaluation are also considered.

EDUC-4899. SEMINAR OF EDUCATIONAL TOPICS IN THE WORLD – STUDY TRAVEL. Credits: 3. Prerequisite(s): None. Corequisite(s): None. Study trip where teacher candidates, and students of related disciplines, are exposed to the sociocultural perspective of a specific country in which the educational system is considered exemplary or that constitutes a differentiated or innovative model. The course is designed to potentiate de candidate development as a reflexive and effective educator, through the experiential learning cycle and clarification of his/her learning style. Furthermore, each participant is expected to broaden and deepen their perspective of the school as a social institution, of education and of life, in the global and critical context that reality demands. The multicultural experience will give each candidate the opportunity to integrate into the learning community undertaken with differentiated activities as a participant observer. The visited scenario will allow to exercise his/her competencies and dispositions (diversity, creativity, leadership, and social transformation) in a autonomous way, in order to validate an emancipatory and empowering learning process for his/her professional life.

CORE AND CONCENTRATION

EDES-4005. EMOTIONAL DISTURBANCES IN CHILDREN AND ADOLESCENTS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDFU-3002, EDES-4006. Corequisite(s): None. Discusses widely the more common deviations of conduct in children and adolescents, possible causal factors of these and some needs, whether therapeutics or educational, that may provide in these cases. Offers the student the opportunity to relate and evaluate some of the best-known approaches for the prevention and intervention of conduct disorders in children and adolescents. Ends with a general view of the latest innovations in the aspect of treating children and adolescents with deviations of conduct.

EDES-4006. NATURE AND NEEDS OF THE EXCEPTIONAL STUDENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDFU-3002. Corequisite(s): None. Offers a general view of psychological and educational needs of the learners with different exceptionalities. Etiologies, characteristics and treatments, legal and philosophical basis, discipline tendencies, and programs of educational intervention and community services are studied. Laboratory and/or field experiences in regular or special classrooms are required.

EDFU-3001. HUMAN GROWTH AND DEVELOPMENT I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course is a requirement for teacher candidates and other emerging professionals who aim to provide their services in educational contexts. It presents a broad, dynamic, and holistic view of human development. The course provides a biogenetic, socio-educational, and psychological foundation regarding the nature and scope of human growth and development from prenatal stage to adolescence. It examines the relation between this foundation and the teaching-learning process. The course explores natural and environmental forces that influence in the development of general human competencies, of a healthy personality, and their implications in the lifelong learning process. This course will be offered in face to face, hybrid, and online modalities.

EDFU-3002. HUMAN GROWTH AND DEVELOPMENT II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDFU-3001. Corequisite(s): None. This course is a requirement for candidates pursuing certification as elementary school teachers, as well as for students in other fields completing a certification in education. Following the study of the life cycle (EDFU3001), this course focuses on the content and theoretical principles of Educational Psychology related to learning. The course experiences help the candidate to develop competencies related to the psychological perspective of the educational context, with particular emphasis on scientific approaches to the human learning process and the biopsychosocial conditions that affect it. The activities will allow the candidates to refine their professional dispositions independently, through experiences that empower them as a reflective and effective professional. The flexibility in the course format allows the candite to engage in activities in both in-person and virtual educational settings, always guided by inclusive excellence for student success.

EDFU-3007. SOCIAL FOUNDATIONS OF EDUCATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3122. Corequisite(s): None. The course studies the analysis of social sciences and its relationship with the educational process and with the school as a social institution. Includes a study of the human cultural heritage and the roles of education in preserving and improve it, the integration of education with life and community and human group institutions, behavior of groups regarding school problems, the social role of the teacher and the relation among social changes and school.

EDFU-3026. PROCESS OF VALUE FORMATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HUMA-3022. Corequisite(s): None. This course seeks to prepare the student to comprehend the nature of the value clarification process. In the explanation of it, it is considered the serious ethical compromise of all teachers concerning their contribution to the strengthening of the value hierarchy in each human, especially on the preschool and primary level child. Will give special attention to modern techniques used to develop the core of the course, which is the value clarification process.

EDFU-3028. FAMILY AS AN AGENT OF SOCIAL CHANGE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDFU-3007, CISO-3122. Corequisite(s): None. This course intends to relate the future teacher with the nature of the family as a social institution. It is vital for the explanation of this course the comprehensive analysis of the impact of social change in Puerto Rico and the tremor caused in society in general, in school and particularly in the child. The Puerto Rican situation merits a strong attempt that humanize the educational process. This course responds to that ethical imperative.

EDFU-3045. PARTICIPANT OBSERVATION IN THE CLASSROOM. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. It is important for the future teacher to establish contact with current problems in the school environment. The course consists of two laboratory hours per week in a school and one lecture or seminar hour per week in the classroom. Through the laboratory hours, the future teacher shares different experiences with classroom teachers and their students in a real scholar environment. While the lecture hour per week offers the opportunity to the future teacher to analyze and discuss the school experiences with the course professor and to revise inherent information to the magisterial profession and his/her vocation.

EDFU-4019. PHYLOSOPHICAL FUNDAMENTS OF EDUCATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HUMA-3022. Corequisite(s): None. Studies the existing relation between philosophy and the pedagogical task. Introduction to the basic problems of philosophy, with special emphasis on educational implications. Also, studies possible schemes for the eventual creation of an education philosophy for a Public Education system. It is a class to observe the implementation of these curricular programs in accordance with the different actual designs and contents.

EDPE-3002. LANGUAGE ARTS IN ELEMENTARY SCHOOL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3102. Corequisite(s): None. This course seeks to familiarize the future elementary school teacher with the global nature of language arts and the particular implications for development and cultivation of our language. By this, we will combine efforts to achieve a clearer view about the importance of the child's linguistic development as part of his/her personal growth.

EDPE-3006. METHODOLOGY OF TEACHING SOCIAL STUDIES IN ELEMENTARY SCHOOL K-3. Credits: 3. Lecture hours per week: 3. Prerequisite(S): CISO-3122,

EDFU-3007. Corequisite(s): None. This is a required course for all elementary school teacher aspirants. The course seeks to provide the future teacher the preparation regarding this curricular area and its teaching. Special attention will be given to concepts and generalizations feeding the content of social studies. The social studies curriculum components of elementary school will be analyzed, with emphasis on primary level K-3 grades.

EDPE-3011. TEACHING MATHEMATICS IN THE ELEMENTARY LEVEL K-3. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3131. Corequisite(s): None. This course seeks to provide the future teacher of elementary school the conceptual and methodological framework of teaching mathematics. Also, presents the student-teacher the structure of the content of K-3; as well as the recommended approaches by the Department of Education's mathematics program. Will analyze the recommended texts, teacher's guides, workbooks, and supplementary materials to carry out the teaching-learning process.

EDPE-3029. THE TEACHING OF PHYSICAL EDUCATION IN THE PRIMARY LEVEL. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course allows the student to develop skills to organize, select, lead, execute and evaluate movement activities that stimulate the perceptual motor development of the primary level child. Attention will be given to the *articulatory* aspect that exists between physical education and other disciplines.

EDPE-3031. TEACHING OF READING AND WRITING IN PRESCHOOL AND PRIMARY LEVEL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDPE-3002. Corequisite(s): None. The teaching of reading and writing on preschool and primary levels. Give emphasis to the study of the skills taught, and analyze aspects related with the organization and development of a program relevant to the preparation, initial and development stages in both parts. Considers the selection and use of reading and writing techniques and materials in the actual programs. Emphasizes the instruction of teaching methodologies, including the curricular integration. It is complemented with clinical experiences.

EDPE-3041. METHODOLOGY IN THE TEACHING OF SCIENCE IN ELEMENTARY SCHOOL K-3. Credits: 2. Lecture hours per week: 3. Prerequisite(s) CIBI3001, EDFU3001. Corequisite(s): None. The student-teacher will relate and use the science processes as discipline (observation of recognition and the use of numerical relations, measurements, recognition and use of time-space relations, classification, communication, inference, and prediction), which will integrate him/her to the study and analysis of laboratory exercises on the different branches of science. The selected exercises to be used for the study and analysis will be given by the existing programs within the public education system and from any innovative program in this area. The approach will be of analytic descriptive type. It will include visits to classroom laboratories to observe the implementation of these curricular programs in accordance with the different designs and current contents in the Department of Public Instruction.

EDPE-3057. DIAGNOSTIC AND EVALUATION OF LEARNING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course prepares the future teacher to recognize, analyze and conceptualize, critically and practically, the diagnostic dynamic, the *evaluation* processes, and their effective application on preschool and primary levels respectively. During the course, emphasis will be given in the development of clinical professional experiences systematically organized.

EDPE-4007. CHILDREN'S LITERATURE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDPE-3002. Corequisite(s): None. General principles of literature and its pedagogical application on the elementary level. Analysis of techniques and proper methods for the study of literary works for children and youngsters. Word value in its different meanings, approaching the students closer to reality of the Puerto Rican child.

EDPE-4025. PRACTICE TEACHING IN ELEMENTARY LEVEL. Credits: 6. Lecture hours per week: 15. Prerequisite(s): EDPE-3006, EDPE-3011, EDPE-3041, EDPE-3031, EDPE-4078. Corequisite(s): EDPE-3057. The principal scenarios or laboratories of Practice Teaching are the Puerto Rico public or private schools. In these, the teacher candidate (CM, for its Spanish acronym) will participate actively in the educational process of the children coursing from Kinder to third grade. As part of it, the CM will plan, execute, and evaluate the students' work. Concurrently, CM will familiarize the student with the administrative procedures inherent to the profession. Also, will develop and participate in activities that involve community immersion in the educational process. As a complement to the educational practice, the CM will attend various seminars where reflection will be made about the classroom experiences and enriching activities will be given for their professional development.

EDPE-4075. CREATIVE EXPERIENCES IN PLASTIC ARTS, MUSIC, AND THEATER FOR ELEMENTARY LEVEL K-3. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Integrated course of the basic skills in the use of color, motion, rhythm, feeling, sound, volume, surface and space and their relationship with plastic arts, music, and theater in elementary level K-3. Laboratory and/or classroom field experiences are required.

EDPE-4078. INTEGRATION OF THE COMPUTER AS TECHNOLOGY FOR EDUCATION. Credits: 3. Lecture hours

per week: 3. Prerequisite(s): EDPE-3006, EDPE-3011. Corequisite(s): None. This course includes a theoretical and practical study, which instructs the student in the use of the computer. Includes the usage of the most common programs to be used in the development of educational processes where knowledge is accessed, processed, and constructed. Includes, in addition, the management of international communication networks with the purpose of familiarizing the student with their use in order to access and process information from different parts of the world. Attention will be given to ethical variables concurrent with the uses of information networks. Also, attention will be given to the development of knowledge and technical skills on the computer as a tool for creating an educational methodology.

EDPE-4095. TEACHING IN KINDERGARTEN. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The student-teacher is guided to comprehend the importance of the child's activity, as it manifests in their natural tendency to play, explore, experiment, and solve problems. The teacher candidate will have the opportunity to develop the skills, activities and knowledge needed to perform his/her duties as a counselor and *facilitator* of learning.

FACULTY

ENCARNACIÓN GONZÁLEZ, JOSÉ M. *Full Professor, EdD,* 2003, University of Puerto Rico, Puerto Rico.

GARCÍA BARRIOS, RAMÓN D. *Full Professor, PhD,* 1993, Arizona State University, United States.

MOJICA RODRÍGUEZ, EDWIN. *Assistant Professor, PhD,* 2020, Ana G. Méndez University, Puerto Rico.

RIVERA CINTRÓN, LUZ I. *Full Professor, PhD,* 1996, Pennsylvania State University, United States.

Spanish

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History and Objectives

The Spanish Department offers general first and second year courses for students of all academic programs of the University of Puerto Rico at Humacao. Also, offers specialized courses in Spanish, Hispanic American and Puerto Rican Literature for the academic programs of Humanities and articulated transfers and, in substitution or equivalence for the second-year requirement in Spanish, to the students in the Bachelor's Program of Chemistry, Physics and Biology of the UPRH. The first-year students who approve the **Advanced Level Spanish Exam** *(College Board* of Puerto Rico) may opt for regular second year courses (according to their curricular sequence, ESPA-3201, ESPA-3202 or ESCO-3001, ESPA-3002) or for the specialized Spanish courses (according to their curricular sequence or particular preference, ESPA-3211, ESPA-3212, ESPA-4221, ESPA-4222 o ESPA-4231, ESPA-4232).

As forums of professional, cultural, and institutional expression, the Spanish Department also sponsors the annual edition of the *Cuadrivium* journal (professors) and an edition of the Literary Circle *Vértigo* (students).

COURSE DESCRIPTIONS

ESCO-3001. PSYCHOLOGY OF WRITTEN COMMUNICATION I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3102. Corequisite(s): None. The course of Psychology of Written Communication I discusses the composition, linguistic, stylistics, grammar, ethics, psychology, and logic of the communications, also includes the basic concepts of informatics. It is designed with the purpose of facilitating and promoting conditions for the students to master communication skills, express themselves fluently, exert leadership, and make decisions of logical, psychological, and ethical character in the work environment. *Note: Also, may have approved the Advanced Level Test of CEEB as a prerequisite.*

ESCO-3002. PSYCOLOGY OF WRITTEN COMMUNCIAITON II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESCO-3001. Corequisite(s): None. The Psychology of Written Communication II course, in addition to discussing the composition, linguistics, stylistics, grammar, ethics, psychology and logic of communication, includes the basic contents of informatics.

ESPA-3005. SPANISH WORKSHOP. Credits: 0. Lecture hours per week: 3. Prerequisite(s): See Note. Corequisite(s): None. The Spanish Workshop is a course centered in developing and refine the basic Spanish skills in the reading context. Exposes the student to practice experiences that prepares him/her to correctly compose as well as to comprehend the reading. This course ensures that the student acquires a better dominium of orthography, vocabulary or lexicon, syntax and of the structure or composition of the paragraph, as well as it qualities. *Note: It will be a requisite for first year student admitted to the University of Puerto Rico at Humacao who have obtained 494 points or less in the Spanish Achievement section of the CEEB. Is a prerequisite of the course ESPA-3101.*

ESPA-3006. WRITING AND COMPOSITION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): See Note. Corequisite(s): None. This course proposes to prepare the student to develop a series of writing strategies when confronting a task that requires written composition. The course points out the study and practice of writing through workshops and a series of systematic writing exercises. The writing process is presented as an essential tool for students learning. Similarly, the course provides for writing composition, a complex activity that involves several sub-processes, to be done considering stylistic elements. From this perspective, students can apply their learning to their respective disciplines or majors. *Note: ESPA-3101, ESPA-3102. Is an elective course. It is recommended the approval of courses ESPA-3101 and ESPA-3102 before taking this course. ESPA-3006 can be taken simultaneously or after other courses of the Spanish Department that are requisites of the different study programs. These courses are: ESPA-3201, ESPA-3202, ESCO-3001, ESCO-3002, ESPA-3211, ESPA-3212, ESPA-4221, ESPA-4222, ESPA-4231 and ESPA-4232.*

ESPA-3101. BASIC SPANISH I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): See Note. Corequisite(s): None. The Basic Spanish I course is part of the component of General Education and uses reading and writing to develop the linguistic skills in the academic context. Exposes the student to literary experiences that prepare him/her to value the different contemporary cultural manifestations. This course offers an introduction to the study of Spanish language. Seeks that the student achieves the maximum dominium possible in the language arts, particularly in respect to the arts of speaking, reading, and writing. Studies the contemporary literary discourse of Spanish, Hispanic Americans, and Caribbean authors, in the light of current topics. *Note: Requisite: 495 points in the Achievement Spanish Exam of CEEB or ESPA-3005.*

ESPA-3102. BASIC SPANISH II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3101. Corequisite(s): None. The Basic Spanish II course is part of the General Education component and uses reading to develop the linguistic skills in the academic context. Exposes the student to literary experiences which prepare him/her to value different contemporary cultural manifestations. This course ensures that the student acquires the necessary skills to compose a research paper. Particularly, emphasizes the procedure of quoting correctly and in the ethical use of information. Continues with the development of language arts and with the study of contemporary literary discourse of Spanish, Hispanic Americans, and Caribbean authors, in the light of current topics.

ESPA-3201. INTRODUCTION TO LITERARY GENRES I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3102. Corequisite(s): None. Can be substituted by ESPA3111-3112, ESPA4221-4222 or ESPA4231-4232. This course studies the distinctive elements and characteristics of the literary narrative discourse: story and novel. Studies the literary work of representative authors from Hispanic literature, with emphasis in Hispano American authors. The genre development is made in a schematic form and its evolution in time is examined. The genre development in Spanish literature will serve as a basis to know its evolution in Hispanic America, to which we belong. *Note: The student may have also approved the Advanced Level Exam of CEEB as a requisite.*

ESPA-3202. INTRODUCTION TO LITERARY GENRES II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3201. Corequisite(s): None. Can be substituted by ESPA3111-3112, ESPA4221-4222 or ESPA4231-4232. This course studies the distinctive elements and characteristics of the essay, lyric and drama literary discourse. Examines the literary production of representative authors from Hispanic literature, with emphasis in Hispano American authors. The genre development is made in a schematic form and its evolution in time is examined. The genre development in the Spanish literature will serve as a basis to know its evolution in Hispanic America, to which we belong. *Note: The student may have also approved the Advanced Level Exam of CEEB as a requisite.*

ESPA-3211. INTRODUCTION TO SPANISH LITERATURE I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3102. Corequisite(s): None. The course proposes to conduct a panoramic study of the methods of literary representation used by creators in Castilian language, from its origin in the Middle Age to the XVI century. The evolution process of peninsular literature is presented through the tendencies and more representative periods, such as the Medieval and the Renaissance. The students are exposed to several discourse manifestations, mainly literary: narratives, poetic and dramatic. *Note: The student may have also approved the Advanced Level Exam of CEEB as a requisite.*

ESPA-3212. INTRODUCTION TO SPANISH LITERATURE II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3211. Corequisite(s): None. This course is a continuation of ESPA-3211. In this context, the course will continue to study the literary moments within the main currents, authors, and representative selections of Spanish literature from the Golden Age to present time.

ESPA-4221. HISPANIC AMERICAN LITERATURE I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3102. Corequisite(s): None. This course presents a historical panorama of the cultural and literary work in Hispanic America, from Pre-Hispanic, colonial and independence periods to the time of modernism consolidation in the Hispano American republics. *Note: The student may have also approved the Advanced Level Exam of CEEB as a requisite.*

ESPA-4222. HISPANIC AMERICAN LITERATURE II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-4221. Corequisite(s): None. This course presents a historical-literary panorama of the Pre-Hispanic, colonial and independence periods to the time of Hispano Americans republics consolidation, in order to achieve a better linguistic competency.

ESPA-4231. PUERTO RICAN LITERATURE I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3102 Corequisite(s): None. This course offers a panoramic view of the Puerto Rican literature, from its origins to the vanguard movements. Studies and analyses literary works from representative authors. *Note: The student may have also approved the Advanced Level Exam of CEEB as a requisite.*

ESPA-4232. PUERTO RICAN LITERATUER II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-4231. Corequisite(s): None. This course is a study of Puerto Rican Literature from the generation of the thirties to the contemporary period, and of the principal works and authors.

FACULTY

GÓMEZ BERAS, CARLOS R. *Full Professor*,
MA, 1992, University of Puerto Rico, Rio Piedras Campus, Puerto Rico.

GONZÁLEZ RIVERA, JEANDELIZE B. Auxiliary Professor,
PhD, 2006, University of Massachusetts, Amherst.
MEd, 2020, University of Puerto Rico, Río Piedras Campus, Puerto Rico.

SANTIAGO TORRES, ALINALUZ. *Full Professor*,
PhD, 2000, University of Massachusetts, Amherst.

VARGAS SCUOTRI, RUTH X. *Full Professor,*
MA, 1993, Inter American University of Puerto Rico, Metropolitan Campus, Puerto Rico.

Humanities

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History and Objectives

Humanities are the set of disciplines related to culture. These disciplines allow the new students to nurture the highest human potentialities: the development of thinking, esthetical sensibility, historical conscience, and conscious political and civic involvement. The Humanities Department offers general courses of first and second year for students of all academic programs of the University of Puerto Rico at Humacao. Moreover, the Department offers a complete BA program with a Major in Studies of Puerto Rico and the Caribbean, which is unique in Puerto Rico.

Also, offers specialized courses in History, Art, Literature, Drama, Music, French and Philosophy. Our students can participate in theatrical plays, pictorial expositions, and study travels to Europe or Latin America and Asia. The Department has a group of exceptional professors known for their knowledge, classroom teachings, research, publications, conferences, awards, and abroad recognitions, among others.

BACHELOR IN ARTS WITH MAJOR IN STUDIES OF PUERTO RICO AND THE CARIBBEAN

Curricular Sequence

Summary of credits:

General Education requirements.....33
Professional requirements.....26
Major requirements.....54
Free electives.....12
Total.....125

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
CISO3121	Introduction to Social Sciences I	3
HUMA3021	Cultural Manifestations of Western Man I	3
CIBI3001	Fundamentals of Biology I ***or***	3
*CIFI3001**	*Introduction to Physical Sciences I*	
	Total	15

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic English II	3
INGL3102	Basic English II	3
CISO3122	Introduction to Social Sciences II	3
HUMA3022	Cultural Manifestations of Western Man II	3
CIBI3002	Fundamentals of Biology II ***or***	3
*CIFI3002**	*Introduction to Physical Sciences II*	
MATE3001	Elementary Mathematics	3
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3006	Writing and Composition	3
INGL3201	Grammar, Composition and Analytical Reading I	3
HIST3211	Hispanic American History I	3
FILO3003	Introduction to Philosophy	3
ARTE3118	Art in Puerto Rico	3
HUMA3601	Humanistic Investigation and Technology	3
	Total	18

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
INGL3202	Grammar, Composition and Analytical Reading II	3
HIST3212	Hispanic American History II	3
ARTE3002	Art in the Caribbean	3
GEOG3101	Geography of the Insular Caribbean	3
XXXX	Free elective	3
	Total	15

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
FRAN3191	Basic French I	4
HIST3241	History of Puerto Rico I	3
ESPA4231	Puerto Rican Literature I	3
FILO3240	Puerto Rican Philosophical Thought	3
MUSI3501	Popular Music of the Caribbean	3
	Total	16

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
FRAN3192	Basic French II	4
HIST3242	History of Puerto Rico II	3
ESPA4232	Puerto Rican Literature II	3
HIST3505	Contemporary Caribbean History	3
FILO3241	Modern Philosophy in the Hispanic Caribbean	3
	Total	16

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
HIST4101	History of Puerto Rico in the Twentieth Century	3
LITE3001	Caribbean Literature I	3
HUMA3602	Mythology, Archetypes and Religion in the Caribbean	3
HUMA3603	Africa in the Caribbean	3
XXXX	Free elective	3
	Total	15

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
LITE3002	Caribbean Literature II	3
HIST4255	Contemporary History	3
XXXX	Free elective	3
XXXX	Free elective	3
	Total	12

**May opt for: CIBI3001 and 3002, Fundamentals of Biology I and II (CIBI3001 and 3002), or Introduction to Physical Sciences I and II (CIFI3001 and 3002).*

COURSE DESCRIPTIONS

ARTE-3002. ART IN THE CARIBBEAN. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course examines Caribbean art since colonial times to present. It studies perspectives and visions of art in the Caribbean. Compares different artists that exposed their individual styles as a Caribbean expression. We will study and discuss definitions and art proposals about what is Caribbean art and its relations with artistic activities and its society in which it is produced. We will analyze painting and sculpture art in depth.

ARTE-3111. DRAWING I. Credits: 3. Lecture hours per week: 3. Prerequisite: None. Corequisite(s): None. The teaching of drawing and composition, use of different means and techniques, using nature or human figure as base and starting points. Can be replaced with ARTE 3125 from Río Piedras.

ARTE-3112. DRAWING II. Credits: 3. Lecture hours per week: 3. Prerequisite: ARTE 3111. Corequisite(s): None. The teaching of drawing and composition, use of different means and tactics, uses nature or human figure as base and starting point. Can be replaced with ARTE 3126 (Drawing of the Human Figure) from Río Piedras.

ARTE-3115. ART APPRECIATION. Credits: 2. Lecture hours per week: 2. Prerequisite: None. Corequisite(s): None. Study of the general concepts of art, considering the historical context, the formal and composition elements in the visual arts.

ARTE-3116. HISTORY OF ART – COMPENDIUM. Credits: 3. Lecture hours per week: 3. Prerequisite: None. Corequisite(s): None. The art history process seeing within its complete historical context, aimed at the comprehension of contemporary art. A comprehensive chronological order is followed to facilitate the study of this ambitious plan.

ARTE-3117. BASIC PAINTING. Credits: 2. Lecture hours per week: 2. Prerequisite: None. Corequisite(s): None. Introduction to the basic elements of painting and the essential principles of composition, always seeking the development of the student talent, teaching him/her the use and technique of oil and acrylic paintings.

ARTE-3118. ART IN PUERTO RICO. Credits: 3. Lecture hours per week: 3. Prerequisite: None. Corequisite(s): None. Study of plastic arts in Puerto Rico from Pre-Columbian era to the present. Takes into consideration artistic manifestations, such as: architecture, sculpture, painting, graphic arts, film, photography, and popular arts.

ARTE-3415. ANATOMIC PAINTING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Offers a workshop environment related to the human figure painting genre, including the introduction to the painting techniques of oil, acrylic, watercolor, and mixed media. The course exposes and analyzes the most outstanding Caribbean pictorial expression where the human figure is the main element.

ARTE-3435. THEORY OF COLOR. Credits: 3. Lecture hours per week: 3. Prerequisite: None. Corequisite(s): None. Practical course that intends to stimulate the student of any discipline in the study of color, in order to apply and channel the acquired knowledge in disciplines and activities, whether they are from their academic, professional or daily specialty.

FILO-3003. INTRODUCTION TO PHILOSOPHY. Credits: 3. Lecture hours per week: 3. Prerequisite: None. Corequisite(s): None. Introduction to the philosophy methods, its problems and questions through its history and study of its relationship with other disciplines and its place in society.

FILO-3005. INTRODUCTION TO ETHICS. Credits: 3. Lecture hours per week: 3. Prerequisite: None. Corequisite(s): None. Systematic analysis of the fundamental theories of western ethics and critical study of problems, such as: the object of ethics, the moral knowledge problem, relation among metaphysics, science and moral; and the role of reason in moral behavior.

FILO-3240. PUERTO RICAN PHILOSOPHICAL THOUGHT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course examines the development of the Puerto Rican philosophical thought. It covers the first philosophical expressions in Puerto Rico: Manuel Corchado y Juarbe, Alejandro Tapia y Rivera, Eugenio María de Hostos, and other well-known philosophers. It studies the principal philosophical tendencies in Puerto Rico, as Hegelianism, Positivism,

Krause-ism, Vital-ism, Existentialism, Thomism, Personal-ism, Idealism and historicism.

FILO-3241. MODERN PHILOSOPHY IN THE HISPANIC CARIBBEAN. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FILO-3240. Corequisite(s): None. This course of Modern Philosophy in the Hispanic Caribbean exposes the development of the scientific thought in the Caribbean countries. Students will study philosophical tendencies such as Enlightenment, Utilitarianism, Positivism, Humanism, Hegelianism and Idealism. The course will focus critically in the principal philosophers that represent these tendencies and the interaction of ideas within the respective times.

FILO-3242. THE PHILOSOPHY OF HISTORY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FILO-3003. Corequisite(s): None. Philosophical approach of the discourse of history throughout its formation process and within its great thinkers. We will debate the epistemological conceptions of ideas in discipline and the inter relationship with the rest of the scientific works.

FILO-3243. PHILOSOPHY OF LAGUAGE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FILO-3003. Corequisite(s): None. This course examines the different philosophical theories of language. It focuses on Being and continuity of language, the problem of significance, thought and language between language and reality.

FILO-3244. ASIAN PHHILOSOPHIES IN THE CARIBBEAN. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course presents a comparison of different Asian views and cultural elements in the Caribbean. Through direct contrasts between East and West hemispheres, the students will appreciate and interpret origins and world view, ideas, systems, and traditional beliefs of Asia in the Caribbean. It also studies cultural perspectives and religions of India in Trinidad Tobago and Surinam, as well as the Chinese presence in Cuba, Panamá, and Puerto Rico.

FILO-4031. LOGIC I. Credits: 3. Lecture hours per week: 3. Prerequisite: None. Corequisite(s): None. Study of methods to analyze statements and inferences in propositional logic, such as truth tables and analytical boards; construction of derivations, in propositional logic as well as in first order logic; metalogic of propositional logic.

FILO-4471. PHILOSOPHY OF SCIENCE I. Credits: 3. Lecture hours per week: 3. Prerequisite: None. Corequisite(s): None. Introduction to main problems of the philosophy of science. Nature of the laws in empirical sciences; explanation and prediction; confirmation and falsification; the induction problem, hierarchy of laws and theories and their reduction.

FILO-4495. INTRODUCTION TO PHILOSOPHYCAL ANTHROPOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite: HUMA 3021 and HUMA 3022; HUMA 3101. Corequisite(s): None. This course is an introduction to the study of the human being in its broadest and universal sense. Examines the views of the human being sustained by philosophers from different schools and periods of the history of philosophy, giving special attention to the critical treatment of the existence problem of a human nature. In addition to preparing the student to define the concept of Philosophical Anthropology, establish his/her place within the philosophy in general and precise his/her relationship with other philosophical, scientific, and humanistic disciplines, the course reveals the immeasurable value of self-knowledge for our complete development as human beings.

FRAN-3191. ELEMENTARY FRENCH I. Credits: 4. Lecture hours per week: 6. Prerequisite: None. Corequisite(s): None. Intensive course that presents the grammatical and phonetical fundamentals of the French idiom. Uses French as a medium for spontaneous oral and written communication.

FRAN-3192. ELEMENTARY FRANCH II. Credits: 4. Lecture hours per week: 6. Prerequisite(s): FRAN 3191 or FRAN-3201 or FRAN-3202 or FRAN-3203. Corequisite(s): None. This course is a continuation of FRAN 3191. Intensive course that presents the grammatical and phonetical fundamentals of the French idiom. Uses French as a medium for spontaneous oral and written communication.

FRAN-3193. INTERMEDIATE FRENCH. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FRAN 3191 and FRAN 3192; FRAN 3201 and FRAN 3202. Corequisite(s): None. Oral and written review of grammatical structures by composition and translation exercises. The textbooks selection will be aimed at improving written and oral expression.

FRAN-3201. FUNCTIONAL FRENCH I. Credits: 3. Lecture hours per week: 3. Prerequisite: None. Corequisite(s): None. The course contains two parts. The first part will emphasize oral comprehension and expression on the everyday situations. The student will acquire vocabulary and functional expressions that will facilitate conversations. The second part will emphasize reading and writing without leaving out the oral expression, developing more instead. These parts will correspond to the first and second semester.

FRAN-3202. FUNCTIONAL FRENCH II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FRAN 3201. Corequisite(s): None. The course contains two parts. The first part will emphasize oral comprehension and expression on the everyday situations. The student will acquire vocabulary and functional expressions that will facilitate conversations. The second part will emphasize reading and writing without leaving out the oral expression, developing more instead. These parts will correspond to the first and second semester.

FRAN-3203. FUNCTIONAL FRENCH III. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FRAN 3202. Corequisite(s): None. The Functional French III course is a continuation of the Fran 3202 course. It is aimed at reinforcing the grammatical structures studied (Functional French I and II) and completing a systematic process where the semantic field serve as a basis and support for the engagement of developed strategies of lexical and linguistic acquisition. This course offers the possibility of reusing the French language within different natural communication situations of informative, argumentative, explanatory, and narrative order. In brief, with its dynamism, the course will contribute in transforming the classroom into a pleasant meeting place where students can express and communicate in French.

HIST-3001. THEORY OF HISTORY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The purpose of this course is to create awareness of the processes and responsibilities of the historian and history researcher. Especially on the analysis of the relation of causality, laws of history and its predictive character. The chronological history and the explanations will be seen. Also, it will study the theoretical problems in modern historiography in order to create a theory of investigation and utility of the discipline. Students will learn to do research on site and will learn to investigate primary sources in archives, visiting the General Archives of Puerto Rico and the General Collection of Puerto Rico.

HIST-3111. HISTORY OF THE UNITED STATES I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HUMA 3101 or HUMA 3021; HUMA 3101 or HUMA 3022. Corequisite(s): None. Study and analysis of the United States of North America economic, political, social, and cultural development from colonization to civil war and reconstruction.

HIST-3112. HISTORY OF THE UNTED STATES II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HIST 3111. Corequisite(s): None. Continuation of HIST 3111. Study and analysis of the United States of North America economic, political, social, and cultural development from colonization to civil war and reconstruction.

HIST-3211. HISPANIC AMERICAN HISTORY I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Study of the Hispano American historical development from the Pre-Columbian era to present time.

HIST-3212. HISPANIC AMERICAN HISTORY II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HIST 3211. Corequisite(s): None. Continuation of HIST 3211. Study of the Hispano American historical development from the Pre-Columbian era to present time.

HIST-3235. HISTORY OF SCIENCE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. A study of the principal aspects in the history and development of sciences from ancient civilizations to present times. It will cover the most important scientific representatives that have contributed to a broad knowledge of nature and society.

HIST-3241. HISTORY OF PUERTO RICO I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Study of the Puerto Rico historical evolution from the discovery of the island until the end of the XIX century. The Indian roots, Spanish conquest and colonization and the emergence of "criollismo" and Puerto Rican cultural personality.

HIST-3242. HISTORY OF PUERTO RICO II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HIST 3241. Corequisite(s): None. Study of Puerto Rico history from 1898 to present; the political changes and their economic and cultural consequences.

HIST-3245. HISTORY OF PUERTO RICO – COMPENDIUM. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Synthesis of History of Puerto Rico course (HUMA 3241-3242). Puerto Rico historical evolution from its discovery in the XV century; colonization in XVI and XVII centuries; study of cultural reformism in XVIII century, shaping of personality in XIX century and current problematic, starting in 1898 and ending in present time.

HIST-3247. HISTORY OF AMERICA. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HIST 3241 and HIST 3242; HIST 3245. Corequisite(s): None. Offers a general and detailed view of the American continent historical process, from Alaska to Patagonia, including the colonization processes to our days. Describes the America history; the political, economic, and cultural more significant processes in the periods under consideration. Exposes the economic background of the American continent, especially from the industrial revolution to present. Narrates the most noted cultural processes by the American nations.

HIST-3505. CONTEMPORARY CARIBBEAN HISTORY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HIST 3241 and HIST 3242. Corequisite(s): None. Panoramic view of the Caribbean history from World War II until present time.

HIST-4001. HISTORY OF REVOLUTIONS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HIST-3505. Corequisite(s): None. The course covers revolutionary processes in contemporary history. It will cover the French revolution, North American revolution, the revolution of Haiti, the Bolshevistic revolution, and independence in Hispanic America, Cuba, and Nicaragua. Through a historical overview the course explores the causes, development of social and economic ideologies, as well as similarities and differences of each process. It will emphasize the influences of these changes in social

life. Also, the conditions that lead into social and political disorders in the last 250 years.

HIST-4002. HISTORY OF THE RELATIONS IN METROPOLI AND COLONIES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HIST-3241 or HIST3505. Corequisite(s): None. It studies the political interaction, financial and materialistic relations, and culture in the colonies. It analyzes the effects of this phenomena in both worlds. It will include the origins and development of these metro political relations, exploring adjustments and reviews of politics in the present.

HIST-4018. HISTORY AND CULTURE OF FOOD IN THE CARIBBEAN. Credits: 3. Lecture hour per week: 3. Prerequisite(s): None. Corequisite(s): None. This course proposes a reflection on the processes of food and culinary fusion that, historically, have been developing in the region up to the present. Focuses, with an emphasis, although not exclusively, in Puerto Rico and some Spanish speaking continental islands and territories. Pretends to attend these processes focusing on some material, social, cultural, and political elements that have marked the development of food which presents, at the same time, single characteristics, but also different within some Caribbean countries. Also, pretends to examine and gives attention to the food dislocation and globalization in the actual food consumerism forms, especially in Puerto Rico.

HIST-4101. HISTORY OF PUERTO RICO IN THE TWENTIETH CENTURY. Credits: 3. Lecture hours per week: 3. Prerequisite(s) HIST-3241 and HIST-3242, or HIST-3245. Corequisite(s): None. This course starts with the socio-economic situation of the island since the Nineteenth Century and the formation of the political parties and the labor movement. It will analyze the political evolution of the country through its governors and legislative majorities. Also, the social, cultural, economic, and political changes in all Twentieth Century to present times.

HIST-4255. CONTEMPORARY HISTORY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Study of the actual world histories from the constitutive revolutions of the contemporary world. This course studies the Industrial Revolution (economic aspects) and French Revolution (ideological and cultural aspects), which aroused from the emergence of new Hispano American countries in the XIX century and continues with the crisis of the first imperial-industrial system from the early to mid-XX century. Finally, studies the emergence of the power blocks after World War II, their development; world scale conflict, until convulsing at the end of the XX century. Explores, at the same time, the political-social movements emerged from the so-called Third World.

HUMA-3010. STUDY TRAVEL TO EUROPE. Credits: 6. Lecture hours per week: 6. Prerequisite(s): None. Corequisite(s): None. The study travel is the practical and direct experience through which the students appreciate the culture, geography, social organization, and idiosyncrasy of the visited countries in order to integrate this personal assessment in the theoretical studies, as a formative aspect of undeniable usefulness that completes all types of intellectual information. The student receives a theoretical component before traveling (conferences, videos, foreign languages courses, course material, among others) and a practical component, which is the travel itself, museum and monument trips and short tests administered along the journey, conferences offered in the bus and final evaluations.

HUMA-3021. CULTURAL MANIFESTATIONS OF WESTERN MAN I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Course by subjects using the group teaching technique. Offers the student a panoramic view of the most important cultural manifestations of the western man, emphasizing the areas of history, art and literature.

HUMA-3022. CULTURAL MANIFESTATIONS OF WESTERN MAN II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Course by subjects using the group teaching technique. Offers the student a panoramic view of the most important cultural manifestations of the western man, emphasizing the areas of philosophy, ethics, and religion.

HUMA-3101 WESTERN CULTURE I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Critical reflection about the most important foundational aspects of the western culture from the different perspectives of humanistic disciplines, such as art, history, literature, philosophy and religious beliefs through the analysis of the most significant works and original texts, particularly emphasizing the ancient Greece and its relationship with present time.

HUMA-3102. WESTERN CULTURE II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HUMA-3101. Corequisite(s): None. Critical reflection about the most important foundational aspects of the western culture from the different perspectives of humanistic disciplines, such as art, history, literature, philosophy and religious beliefs through the analysis of the most significant works and original texts, particularly emphasizing the ancient Rome, the Christianity origins, the transition from Hellenistic period to Middle Age and its relationship with present time.

HUMA-3201. WESTERN CULTURE III. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HUMA 3102. Corequisite(s): None. Critical reflection about the western cultural processes from Middle Age to Renaissance, emphasizing the areas of literature, philosophy, art, history and religious beliefs through the analysis of the most representative works and texts from

that era and their relationship with the contemporary world.

HUMA-3202. WESTERN CULTURE IV. Credits: 3. Lecture hours per week: 3. Prerequisite(s): HUMA 3201. Corequisite(s): None. Critical reflection about the western cultural process from XVIII century to our day, emphasizing the areas of literature, philosophy, art, history, and religious beliefs through the analysis of the most representative works and texts of those eras.

HUMA-3230. HISTORY OF RELIGIONS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The course covers the religious phenomena and its different cultural manifestations since prehistory to present times. The study of religions covers political topics, social problems and economical situations conceived and developed in the different cultures. It will select not only Asian religions but the Amerindian religions and their development in the Western world.

HUMA-3515. TRAVEL TO PRE-HISPANIC AND COLONIAL CENTRAL AMERICA. Credits: 6. Lecture hours per week: 6. Prerequisite(s): None. Corequisite(s): None. Provides students with general knowledge about some of the cultures of the pre-Columbian ancient civilizations of the Mesoamerica area and the colonial era. The course will end with a trip to some places of the Central America and Mexico countries; through which the student may combine the theoretical component learned with direct experience.

HUMA-3601. HUMANISTIC INVESTIGATION AND TECHNOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course works on the methodological processes of the humanistic contemporary research. It offers a practical methodology within data compilation, formulation of hypothesis, applied data and uses of databases. It will study theoretical frames as well as technical preparation and writing process of a dissertation and bibliography. The course includes topics on technology, applications, databases, digital images, intellectual property, research vocabulary, formats and writing process. It also discusses the different writing styles following the MLA and other formats. It clarifies the importance of integrity in research and the avoidance of plagiarism. Students will work on research work and will develop a written work under the supervision of the professor.

HUMA-3602. MITHOLOGY, ARCHETYPES AND RELIGION IN THE CARIBBEAN. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course presents the mythical and symbolic evolution of the religious believes in different Caribbean cultures. Identifies and describes the mythological and universal aspects, collective symbols, and the common characteristics of the religions in the Caribbean in an artistic and literary context.

HUMA-3603. AFRICA IN THE CARIBBEAN. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Reflections on the influence of Africa in the Caribbean history and cultures. It studies the presence of African culture in the Caribbean slavery, labor movements, antislavery movements, and the reaffirmation of the black movements in politics, decolonization processes and cultural rebirth. It also studies African culture in the Caribbean diaspora.

LITE-3001. CARIBBEAN LITERATURE I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course presents a comparative study of the Caribbean literature since colonial period up to the XX Century. It analyses topics as identity, racism, naturalism, 'costumbrismo', romanticism, and magical realism through essay, short stories, poetry, and fiction. It takes in consideration literature written in the different Caribbean languages: Spanish, English, and French.

LITE-3002. CARIBBEAN LITERATURE II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): LITE-3001. Corequisite(s): None. A deep study of the literary genres in Caribbean literature of the Twentieth Century throughout representative works of the different movements.

LITE-3011. MODERN LITERATURE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Study of representative works in the modern era from Renaissance to Neo-Classicism.

LITE-3012. CONTEMPORARY LITERATURE. Credits: 3. Lecture hour per week: 3. Prerequisite(s): LITE 3011. Corequisite(s): None. Study of the contemporary era focusing on the study of Romanticism, Realism, super-realism or surrealism works.

MUSI-3145. INTRODUCTION TO MUSICAL ART REPERTOIRE. Credits: 3. Lecture hour per week: 3. Prerequisite(s): None. Corequisite(s): None. Course to train the ear in order to have an esthetic experience through the study of significant works of musical art.

MUSI-3235. MUSIC APPRECIATION. Credits: 2. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. Gives students how to learn classical music and appreciate the esthetical value produced when listening to the work of the most famous compositors of all times. Several musical forms are studied, symphony, fugue, sonata, oratory, and opera, among others. Teach to distinguish the classical from folklore.

MUSI-3501. POPULAR MUSIC OF THE CARIBBEAN. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course offers a panoramic view of the musical development in the Caribbean from colonial period to present times. This vision is based on the positioning of the Caribbean musical arts on its geographical, historical, economical and socio political and cultural context. This course

allows students to appreciate the unity and diversity of the Caribbean music and Puerto Rico as a place in this universal cultural context.

TEAT-3011. ACTING I. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Theory and practice of theater. Fundamental aspects of acting. Equivalent to Drama 3011 at UPR Río Piedras.

TEAT-3012. ACTING II. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Theory and practice of theater. Fundamental aspects of acting. Equivalent to Drama 3012 at UPR Río Piedras. As a course final project, students will present a theatrical piece.

TEAT-3031. DICTION I. Credits: 2. Lecture hours per week: 3. Prerequisite: None. Corequisite(s): None. Fundamental aspects of theory and the techniques of diction in theater. Equivalent to Drama 3031 at UPR Río Piedras.

TEAT-3032. DICTION II. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Fundamental aspects of theory and the techniques of diction in theater. Continuation of Diction I (TEAT 3031). Equivalent to Drama 3032 at UPR Río Piedras.

TEAT-3151. THEATRICAL MOVEMENT I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. In the first phase, students will be given a short introduction about pantomime, its history, tendencies, and its greatest exponents. Once they are related to the subject, the course will continue with corporal preparation exercises, concentrating in coordination, flexibility, balance, strength, and resistance exercises. The second part will discuss the knowledge of several languages, such as energy and emotive projections. Exercises of communication, creativity and collective creation will be made.

TEAT-3152. THEATRICAL MOVEMENT II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. In the first phase, students will be given a short introduction about pantomime, its history, tendencies, and its greatest exponents. Once they are related to the subject, the course will continue with body preparation exercises, concentrating in coordination, flexibility, balance, strength, and resistance exercises. The second part will discuss the knowledge of several languages, such as energy and emotive projections. Exercises of communication, creativity and collective creation will be made.

TEAT-3191. INTRODUCTION TO THEATRICAL PRODUCTION I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Theatrical production theory and practice. Research and design of different phases in a production: costume, makeup, scenography, use, utilities, promotion, etc.

TEAT-3192. INTRODUCTION TO THEATRICAL PRODUCTION II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Theory and practice of theatrical production. Participation and realization of different phases of theatrical production: costume, makeup, scenography, lighting, utilities, promotion, etc.

TEAT-3201. SCENIC DESIGN. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Specific course of scenic design fundaments. Theory and drawing in the technical aspects of construction, painting, design, and lighting of theatrical work.

FACULTY

HERNÁNDEZ ACOSTA, JOSÉ EUGENIO. *Full Professor*, *PhD*, 2013, Center for Advanced Studies of Puerto Rico and the Caribbean, Puerto Rico.

JIMÉNEZ CORRETJER, ZOÉ. *Full Professor,* *PhD*, 1995, Temple University, United States.

LÓPEZ ROJAS, LUIS A. *Full Professor,* *PhD*, 1996, Center for Advanced Studies of Puerto Rico and the Caribbean, Puerto Rico.

MOREIRA VIDAL, RUBÉN. *Full Professor,* *PhD*, 1996, Temple University, United States.

PIÑERO CÁDIZ, GERARDO M. *Full Professor,* *PhD*, 2004, Center for Advanced Studies of Puerto Rico and the Caribbean, Puerto Rico.

ROSA COLÓN, EDWAR. *Assistant Professor*, *PhD*, 2017, New York University, NYC.

SÁNCHEZ-LONGO DE LEÓN, LUIS P. *Associate Professor,* *MA*, 1995, University of Puerto Rico, Puerto Rico.

URSULIN MOPSUS, DIANA. *Assistant Professor,* *PhD*, 2015, University of Puerto Rico, Río Piedras Campus, Puerto Rico.

English

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History and Objectives

The Bachelor of Arts with major in Elementary Level English and Bachelor of Arts with major in Secondary Level English, was established in 1997. The main purpose of this program is to prepare and retrain resources capable to satisfy the urgent need to improve the teaching-learning quality of English on elementary and secondary levels. The Program proposes: to develop a bilingual teacher that comprehends the basic aspects of the Puerto Rican language and culture, as well as from other English speaking countries, especially from the United States; to develop activities aimed at imparting values that reflect democratic principles and, at the same time, our cultural heritage; to prepare teachers to instill their desire to use English as a communication channel in a society where the necessity of using this language becomes more significant; to develop positive relations among the English Department of the University of Puerto Rico at Humacao and the Department of Education and among different sectors and institutions of the region served by our University.

Since 2009, the Bachelor of Arts (English) is recognized by TESOL (*Teachers of English of Other Languages*) and is in the process of reaccreditation by CAEP *(Council for Educator Preparation)* in the teacher preparation area.

In addition, the English Department offers first and second year general education courses and business English courses for students of administrative sciences.

Academic Programs

The Department offers study programs leading to the following academic degrees: **Bachelor of Arts with major in Elementary Level English.** Prepares teachers to work at elementary level schools, both public and private systems. **Bachelor of Arts with major in Secondary Level English.** Prepares teachers to work at secondary level schools, both public and private systems. On both programs, the core courses are offered in the following modalities: on-site, hybrid, distance, and online.

Curricular Sequence

BACHELOR OF ARTS WITH MAJOR IN ELEMENTARY LEVEL ENGLISH

Summary of credits:

General Education requirements	83
Core requirements	30
Core electives	6
Free electives	9
Total	**128**

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3103	Intermediate English I *or*	3
INGL3171	*College Writing I*	
CISO3121	Introduction to Social Sciences I	3
HUMA3021	Cultural Manifestations of Western Man I	3
CIBI3001	Fundamentals of Biology I	3
MATE3041	Introduction to Mathematics I	3
	Total	18

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic English II	3
INGL3104	Intermediate English II *or*	3
INGL3172	*College Writing II*	
CISO3122	Introduction to Social Sciences II	3
HUMA3022	Cultural Manifestations of Western Man II	3
CIBI3002	Fundamentals of Biology II	3
MATE3042	Introduction to Mathematics II	3
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3201	Introduction to Literary Genres I	3
INGL3221	Introduction to Literature I	3
INGL3227	Phonology	3
EDFU3001	Human Growth and Development I	3
HIST3245	History of Puerto Rico - Compendium	3
EDFU3045	Participant Observation in the Classroom	2
	Total	17

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3202	Introduction to Literary Genres II	3
INGL3222	Introduction to Literature II	3
INGL4206	Modern English Grammar: Morphology and Syntax	3
EDFU3002	Human Growth and Development II	3
ARTE3115	Art Appreciation	2
COMU2019	Evaluation, Selection and Use of Technological Resources	3
	Total	17

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3231	Advanced Expository Prose Writing I	3
INGL4325	Language Acquisition*	3
INGL4328	Linguistics and Reading*	3
EDFU4019	Philosophical Fundaments of Education	3
EDFI3105	Simple Organization Games	2
EDFU3007	Social Foundations of Education	3
	Total	17

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
INGL3232	Advanced Expository Prose Writing II	3
INGL3252	American Literature II ***o***	3
INGL3002	*British Literature II*	
EDPE3018	Methodology in the Teaching of English to Spanish Speakers – Elementary Level***	3
EDES4006	Nature and Needs of the Exceptional Student	3
MUSI3235	Music Appreciation	2
	Free elective	3
XXXX	Total	17

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL4326	Children's Literature	3
EING4068	Classroom Management	3
EDPE4019	Practice Teaching Seminar – Elementary Level**^^	3
HIST3111	History of United States I	3
XXXX	Free elective	3
	Total	15

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
EDPE4018	Practice Teaching – Elementary Level**^^	6
XXXX	Free elective	3
	Total	9

** Corequisite: Must obtain a minimum grade of C.*
*** Corequisite: Must obtain a minimum grade of B.*
**** INGL3251 or INGL3001 are also accepted.*
^^ Enrolled in the English BA Program-Elementary Level.

BACHELOR OF ARTS WITH MAJOR IN SECONDARY LEVEL ENGLISH

Summary of credits:

General Education requirements.....81
Core requirements.....33
Core electives.....6
Free electives.....9
Total.....129

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3103	Intermediate English I *or*	3
INGL3171	*College Writing I*	
CISO3121	Introduction to Social Sciences I	3
HUMA3021	Cultural Manifestations of Western Man I	3
CIBI3001	Fundamentals of Biology I	3
MATE3041	Introduction to Mathematics I	3
	Total	18

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3104	Intermediate English II *or*	3
INGL3172	*College Writing II*	
CISO3122	Introduction to Social Sciences II	3
HUMA3022	Cultural Manifestations of Western Man II	3
CIBI3002	Fundamentals of Biology II.	3
MATE3042	Introduction to Mathematics II	3
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3201	Introduction to Literary Genres I	3
INGL3221	Introduction to Literature I	3
INGL3227	Phonology	3
EDFU3001	Human Growth and Development I	3
HIST3245	History of Puerto Rico – Compendium	3
EDFU3045	Participant Observation in the Classroom	2
	Total	17

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3202	Introduction to Literary Genres II	3
INGL3222	Introduction to Literature II	3
INGL4206	Modern English Grammar: Morphology and Syntax	3
EDFU3002	Human Growth and Development II	3
ARTE3115	Art Appreciation	2
COMU2019	Evaluation, Selection and Use of Technological Resources	3
	Total	17

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3231	Advanced Expository Prose Writing I	3
INGL4325	Language Acquisition*	3
INGL4328	Linguistics and Reading*	3
INGL3251	American Literature I ***or***	3
INGL3001	*British Literature I*	
EDFU4019	Philosophical Fundaments of Education	3
EDFU3007	Social Foundations of Education	3
	Total	18

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
INGL3232	Advanced Expository Prose Writing II	3
INGL3252	American Literature II ***or***	3
INGL3002	*British Literature II*	
EING4006	Teaching of English to Spanish Speakers – Secondary Level**	3
EDES4006	Nature and Needs of the Exceptional Student	3
MUSI3235	Music Appreciation	2
XXXX	Free elective	3
	Total	17

FOURTH YEAR – FIRST SEMESTER

Code	Curso	Crs.
INGL4327	Adolescents' Literature	3
EDPE4005	Practice Teaching Seminar – Secondary Level**^^	3
EING4068	Classroom Management	3
HIST3111	History of United States	3
XXXX	Free elective	3
	Total	15

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
EDPE4006	Practice Teaching – Secondary Level**^^	6
XXXX	Free elective	3
	Total	9

** Corequisite: Must obtain a minimum grade of C.*
*** Corequisite: Must obtain a minimum grade of B.*
^^ Enrolled in the English BA Program-Secondary Level.

COURSE DESCRIPTION

EDPE-3018. METHODOLOGY IN THE TEACHING OF ENGLISH TO SPANISH SPEAKERS – ELEMENTARY LEVEL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDFU-3045, INGL-4325, INGL-4328. Corequisite(s): None. Study and implementation of the principles, methods, procedures, and techniques of teaching English as a second language, analysis of textbooks and other materials used in public schools of Puerto Rico, planning and evaluation of the teaching-learning situation on the elementary level.

EDPE-4005. PRACTICE TEACHING SEMINAR – SECONDARY LEVEL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EING-4006, INGL-4325 and INGL-4328. Corequisite(s): None. Study and analysis of problems in the classroom (secondary level). Emphasis on adaptation and use of resources for learning, organization, planning and responsibilities of a teacher towards the students, peers, school, and community.

EDPE-4006. PRACTICE TEACHING – SECONDARY LEVEL. Credits: 6. Lecture hours per week: 15. Prerequisite(s): EDPE-4005, INGL-4325 and INGL-4328. Corequisite(s): None. The student will assume the responsibilities inherent to the teaching-learning process [secondary level]. Will be exposed to real situations in the classroom, supervised by a staff composed of the University's supervisor, the director, and the cooperating teacher from the practice center.

EDPE-4018. PRACTICE TEACHING – ELEMENTARY LEVEL. Credits: 6. Lecture hours per week: 15. Prerequisite(s): EDPE-4019. Corequisite(s): None. Practice of teaching (elementary level). The student will assume the responsibilities inherent to the teaching-learning process. Will be exposed to real situations in the classroom, supervised by a staff composed of the University's supervisor, the director, and the cooperating teacher from the practice center.

EDPE-4019. PRACTICE TEACHING SEMINAR – ELEMENTARY LEVEL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDPE-3018, INGL-4325, INGL-4328. Corequisite(s): None. Study and analysis of problems in the classroom (elementary level). Emphasis in adaptation and use of resources for learning, organization, planning and responsibilities of the teacher towards the students, peers, school, and community.

EING-4006. TEACHING OF ENGLISH TO SPANISH SPEAKERS – SECONDARY LEVEL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDFU-3045, INGL-4325, INGL-4328. Corequisite(s): None. Introduction to the teaching of English in secondary school. Emphasis in objectives, methods, and materials. Considers the English Program from the public school. The course is complemented with clinical experiences.

EING-4027. CONFLICT RESOLUTION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDPE-3018 or EING-4006. Corequisite(s): None. This course is designed to explore how to resolve conflicts and reach agreements in a school scenario in order to contribute to a climate of scholar order. The course emphasizes the importance of creating relations between rights and responsibilities and between actions and consequences within the classroom.

EING-4028. CURRICULUM DESIGN. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDFU-3045, EDFU-3007, EDFU-4019. Corequisite(s): None. Study and analysis of the principles on which are based the preparation and the curricular designs development, as well as their implementation on our environment. Discusses innovative subjects or problems confronted in the design of teaching programs while emphasizing in the development of curricular theory and research in the area of English as a second language.

EING-4068. CLASSROOM MANAGEMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDPE-3018 or EING-4006. Corequisite(s): None. This is an elective course designed to provide the service teachers with a basic knowledge of complex practices that help to create an environment conducive to learning.

INCO-2015. CONVERSATIONAL ENGLISH FOR OFFICE PERSONNEL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3101 and INGL-3102. Corequisite(s): None. A course of conversational English especially designed for office personnel necessities. Students will develop commercial vocabulary and idiomatic expressions through readings and oral interaction and will practice through simulations taken from real situations within the office environment.

INCO-2016. CRITICAL ANALYSIS AND WRITING OF BUSINESS CORRESPONDENCE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3102 or INCO-1012, CISE 3209 and CISE 3215. Corequisite(s): None. Course of business English on which students integrate the theoretical knowledge of business correspondence with English writing techniques and word processing. Practice will be given to the critical analysis of business correspondence and routine correspondence writing.

INCO-3005. BUSINESS COMMUNICATION I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3101 and INGL-3102 o INGL-3103 and INGL-3104. Corequisite(s): None. This course is aimed at students from the Business Administration Program and at students from the Associate Degree and Bachelor in Office Systems Administration. Offers a theoretical-conceptual framework of the effective communication in business English with a practical component on all its units. The course demands attention to the logical and psychological processes that regulate the writing of business wording.

INCO-3006. BUSINESS COMMUNICATION II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INCO-3005. Corequisite(s): None. Continuation of INCO-3005. This course is aimed at students in the Bachelor Program of Business Administration and at students in the Associate Degree and Bachelor of Office Systems Administration. Offers a theoretical-conceptual framework of the effective communication in business English with a practical component on all its units. The course demands attention to logical and psychological processes that regulate the writing of business wording.

INCO-3027. REPORT WRITING. Credits: 2. Lecture hours per week: 2. Prerequisite(s): INCO-3005 and INCO-3006. Corequisite(s): None. Training in the fundamental techniques of business communication through written reports. Special attention is given to procedures used when writing objectives, good organization, data reports, classification of reports and research methods. A written analytical short report is required.

INCO-3126. CONVERSATIONAL ENGLISH FOR STUDENTS OF BUSINESS ADMINISTRATION. Credits: 2. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. Designed to prepare the student to express correctly on any given situation in their professional and social life. Will emphasize good manners in conversations, phone calls, interviews, talking and discussions before a group. Recording equipment will be used to create good conversation habits.

INCO-3127. CONVERSATIONAL ENGLISH FOR INTERNATIONAL BUSINESS STUDENTS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3102 or INGL3104. Corequisite(s): None. This course is designed to help students improve their fluency in English and its use in a global business and professional context by increasing their business vocabulary and introducing them to specific oral skills required in the international corporate community. Its primary objective is to provide students with the opportunity to practice and develop their oral communication skills. This course is aimed at fulfilling the graduation requirement in foreign languages for students majoring in International Business major of Business Administration.

INCO-4050. CONVERSATIONAL ENGLISH FOR OFFICE PROFESSIONALS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INCO-3005, INCO-3006. Corequisite(s): None. Required course for students of Business Systems Administration. Designed to develop oral communication skills of students up to an Administrative Assistant level. The appropriate business vocabulary and idiomatic expressions used at the office will be acquired through the lecture, oral interaction and activities simulating real situations encountered by the secretary. Special practice of common expressions frequently used in conversations on an office context.

INGL-0080. PRE-BASIC ENGLISH. Credits: 3. Lecture hours per week: 4. Prerequisite(s): None. Corequisite(s): None. Preparatory course designed to capacitate the student to comply with the English subsequent requirements. Develops hearing, oral, reading and writing skills. Also, pretends to modify the students' attitude towards the learning of the English language. *Note: Is a requisite for students admitted to University of Puerto Rico at Humacao who have obtained 444 or less in the English achievement section of the CEEB.*

INGL-3001. BRITISH LITERATURE I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3221, INGL-3222. Includes the study of British literature from Beowulf to Neoclassical period. Written and oral reports are required.

INGL-3002. BRITISH LITERATURE II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3221, INGL-3222. Corequisite(s): None. Continuation of British literature study. Includes the Romanticism period until XX century.

INGL-3021. ORAL AND WRITTEN ENGLISH I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3102 or INGL-3104. Corequisite(s): None. This course is designed for future teachers of Elementary School. Emphasizes vocal pronunciation and fluency in written English

communication. Seeks to familiarize the student with the concepts of teaching English.

INGL-3022. ORAL AND WRITTEN ENGLISH II. Credits 3. Lecture hours per week: 3. Prerequisite(s): INGL-3021. Corequisite(s): None. Continuation of INGL-3021. This course is designed for future teachers of Elementary School. Emphasizes vocal pronunciation and fluency in written English communication. Seeks to familiarize the student with the concepts of teaching English.

INGL-3101. BASIC ENGLISH I. Credits: 3. Lecture hours per week: 4. Prerequisite(s): None. Corequisite(s): None. This course integrates hearing, oral, of reading and writing while developing vocabulary and grammatical structures of the English language. *Note: Requisite - Score from 451 to 580 in the English achievement section of the CEEB.*

INGL-3102. BASIC ENGLISH II. Credits: 3. Lecture hours per week: 4. Prerequisite(s): INGL-3101. Corequisite(s): None. Continuation of Basic English I. This course integrates hearing, oral, of reading and writing while developing vocabulary and grammatical structures of the English language.

INGL-3103. INTERMEDIATE ENGLISH I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Oral and written communication based in selected readings and analyses giving attention to grammar and idiomatic expressions. *Note: Requisite – Score from 581 in the English achievement section of the CEEB*

INGL-3104. INTERMEDIATE ENGLISH II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3103. Corequisite(s): None. Continuation of Intermediate English I. Oral and written communications based in selected readings and analyses giving attention to grammar and idiomatic expressions.

INGL-3171. COLLEGE WRITING I. Credits: 3. Lecture hours: 3. Prerequisite(s): None. Corequisite(s): None. This course is designed for those students enrolled in the English BA Program or other academic programs who score 581 and higher in the English section of the CEEB. It emphasizes on refining students' writing skills while improving other English competencies. It also aims to familiarize the students with research skills, use and availability of technological resources, and issues related to the use of English for academic purposes. This course may be offered in hybrid, online, or in-class modality.

INGL-3172. COLLEGE WRITING 2. Credits: 3. Lectures hours per week: 3. Prerequisite(s): INGL3171. Corequisite(s): None. This course is designed to give students the opportunity to further develop and individualize their writing style through reading and focusing on non-fictional pieces. This course uses the essay as a springboard to expand students' creative and analytical writing through personal reflection: reaction papers, critiques, memoirs, and case studies. The course can be offered in face-to-face, hybrid and distance mode.

INGL-3201. GRAMMAR, COMPOSITION AND ANALYTICAL READING I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3102 or INGL-3104. Corequisite(s): None. This course is designed to teach students writing and composition skills using the general method, based in an exhaustive and critical analysis of selected readings. These readings include essays, short stories, and poems. Supplementary teaching in grammar is provided as needed.

INGL-3202. GRAMMAR, COMPOSITION AND ANALYTICAL READING II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3201. Corequisite(s): None. This course is designed to continue developing students in the effective use of the language. The course emphasizes the development of writing and composition skills using the general method, based in an exhaustive analysis of readings. The selected readings include short stories, essays, and novels. Supplementary teaching in grammar is provided as needed. The basic techniques of research are introduced.

INGL-3221. INTRODUCTION TO LITERATURE I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3104. Corequisite(s): None. Analysis and appreciation of the story, essay, and novel. Oral and written practices of subjects developed by taking into consideration the mentioned genres.

INGL-3222. INTRODUCTION TO LITERATURE II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3104. Corequisite(s): None. Continuation of INGL-3221. Reading for analysis and appreciation of poetry and theater. Oral and written discussion of the studied genres and related areas.

INGL-3227. PHONOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3104. Corequisite(s): None. Study of the phonological structures of English in the United States with emphasis in the acquisition of linguistic analysis skills. These skills will allow the student to go beyond the course material and analyze and comprehend not studied structures.

INGL-3231. ADVANCED EXPOSITORY PROSE WRITING I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3221 and INGL- 3222. Corequisite(s): None. Intensive practice of the accepted patterns for prose exposition in order to master a clear and precise style. Analysis of prose verses.

INGL-3232. ADVANCED EXPOSITORY PROSE WRITING II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3231. Corequisite(s): None. Continuation of INGL-3231. Intensive practice of the accepted patterns for prose exposition in order to master a clear and precise style. Analysis of prose verses. Research, focused on the

collection, evaluation, and organization of information. Use of bibliography and other research instruments.

INGL-3251. AMERICAN LITERATURE I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3221, INGL-3222. Corequisite(s): None. Study of American literature development from its beginnings until Whitman y Dickinson.

INGL-3252. AMERICAN LITERATURE II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3221, INGL-3222. Corequisite(s): None. Study of American literature development from Mark Twain to present time.

INGL-3269. ENGLISH GRAMMAR SKILLS DEVELOPMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3103, INGL-3104. Corequisite(s): None. This course will provide students practice in grammatical analysis and strategies for the teaching of English grammar and will allow to improve their writing. Also, will facilitate getting to know a diversity of educational material and different methods for the teaching of English grammar in public and private schools of Puerto Rico. Special attention will be given to usual difficulties confronted by Spanish speakers when learning a second or foreign language.

INGL-4067. SPECIAL TOPICS OF AMERICAN LITERATURE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3221, INGL-3222. Corequisite(s): None. This is an undergraduate course designed to provide the option of focusing in particular subjects of the American literature. Topics may include, for example: "Literature by and about Native Americans," "Women's Voices from the Colonial Period to the Nineteenth Century," and "Slavery and Slave Narratives: Representations of Self and 'Otherness'." Choice of topics will depend on the instructor who will then develop the corresponding course outline.

INGL-4206. MODERN ENGLISH GRAMMAR: MORPHOLOGY AND SYNTAX. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3227. Corequisite(s): None. Study of morpho-syntactic and lexical structures of the English language with emphasis in the acquisition of linguistic analysis skills.

INGL-4215. CONTEMPORARY NOVEL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3222. Corequisite(s): None. Critical reading of contemporary novels from England and the United States. Study of literary movements since World War II.

INGL-4235. STRUCTURAL AND SYNTACTIC ANALYSIS OF ENGLISH AND SPANISH. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-4206, EDFU-3045. Corequisite(s): None. Comparative analysis of syntaxis, semantic, phonological, and lexical systems. Identification, overview and explanation of the nature and origin of different types of errors committed by students of English as a second language. Analysis of oral and written work samples.

INGL-4325. LANGUAGE ACQUISITION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-4206, EDFU-3045. Corequisite(s): None. One semester course based in the study of the vernacular language acquisition, its relationship with the acquisition of a second language and the factors that affect this acquisition.

INGL-4326. CHILDREN'S LITERATURE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EING-4006 or EDPE-3018. Corequisite(s): None. Study and analysis of literature's role in the development of children. Introduction to the methods, techniques, materials, and activities essential for a good reading program in elementary school. More emphasis will be given to the criteria for evaluating literature that will introduce children to the world of books.

INGL-4327. ADOLESCENTS' LITERATURE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-3221, INGL-3222. Corequisite(s): None. Selection and use of literature in accordance with the different interests and abilities of students from grade 7 to 12. Studies the problems and objectives to be developed. Practice in preparing for a reading class.

INGL-4328. LINGUISTICS AND READING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): INGL-4206, EDFU-3045. Corequisite(s): None. Implementation of the linguistic theory to the teaching of reading in English. Analysis of sequences in the reading skills development, based on the individual differences and interests of students. Evaluation of reading materials according to the grade and capability of students.

INGL-4329. ASSESSMENT AND EVALUATION OF ENGLISH LANGUAGE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDPE-3018 or EING-4006. Corequisite(s): None. This course studies the construction, administration, tabulation and scoring of the English achievement and proficiency tests and standard tests. Also, study the elements of quizzes and tests, the components of tests items and the assessment of the four language skills. Special attention will be given to the methods of testing communicative competence through integrated and direct measures.

INGL-4345. LANGUAGE AND CULTURE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): EDPE-3018 or EING-4006. Corequisite(s): None. This course is designed to explore the multifaceted relation between language and culture. Focuses of issues of cultural diversity that affect the acquisition of a second language in terms of ethnicity, race, genre, geography, socio economy, education, and age, among other factors. The course also examines the theoretical and conceptual aspects of multicultural education from a historical, philosophical, sociocultural, political, and pedagogical perspective.

FACULTY

BALAGUER DOMÍNGUEZ, GIOVANNA P. *Full Professor,*
EdD, 2008, University of Puerto Rico, Puerto Rico.

CARATINI SOTO, MIGDALIA. *Full Professor*,
PhD, 1984, New York University, United States.
JD, 1990, Inter American University of Puerto Rico, Puerto Rico.

CARDONA MATOS, MARITERE, *Assistant Professor,*
EdD, 2014, Turabo University, Puerto Rico

HODGES SEYMOUR, ELIZABETH J. *Full Professor*,
MA, 1985, Columbia University, United States.

LÓPEZ RODRÍGUEZ, JESÚS. *Associate Professor,*
EdD, 2005, University of Puerto Rico, Puerto Rico.

LUGO COLÓN, NILSA. *Full Professor*,
EdD, 2007, University of Puerto Rico, Puerto Rico.

MUÑOZ CLAUDIO, ANÍBAL. *Full Professor,*
EdD, 2011, University of Puerto Rico, Puerto Rico.

REYES LABORDE, MARITZA. *Full Professor*,
EdD, 1996, Columbia University, United States.

ROMÁN RODRÍGUEZ, ROBERTO. *Assistant Professor,*
MA, 1980, University of Puerto Rico, Puerto Rico.

Social Work

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History and Objectives

The Department of Social Work of the University of Puerto Rico at Humacao (UPRH) is in a continuous development process, considering the necessities identified in its assessment process and in the achievement of its goals and objectives, aligned with the established educational policy. This Department is compromised in the development of highly qualified, efficient, and skilled professionals that can contribute in the solution of problems faced by current Puerto Rican society, especially those in the Eastern area.

The Program was established in the academic year 1976-77 as one of the first bachelor programs in the Institution and, for the first time, in 1977 was accredited by the *Council on Social Work Education* (CSWE). Since then, the Program has been successfully and continuously reaccredited with the maximum time granted by this organism.

The vision of the Department is to be an instructive model that forms professionals who demonstrate commitment and sensibility towards different communities, the inclusion, defense of human rights, equality, social, economic and environmental justice, the promotion of human development and social wellbeing for the transformation and solution of the problems confronted by the Puerto Rican society, especially those of the Eastern region. The Department's mission is to form students who will identify with the profession through an education based on competencies and liberal arts, so they can engage the Generalist Social Work practice at an early level. Students will develop knowledge, values, and skills of critical thinking to provide services on different contexts and practice levels (micro, mezzo, and macro) with individuals, families, groups, communities, and organizations. Its efforts are aimed to the commitment with: professional ethic, social politics, research, technological advances, diversity and difference, inclusion, human rights, equality, social, economic, and environmental justice, eradication of poverty, promotion of human development, and social well-being in the cultural context of Puerto Rico. The student body is introduced to collaborative experiences through the establishment of relations among the academic, professional, and social institution communities of the Eastern region, Puerto Rico, and the Caribbean, with a global perspective.

Academic Program

The Department maintains a curricular offer framed in a Generalist perspective. It also includes systematic, bio-psych-socio-cultural-spiritual, and environmental approaches for the strengthening of a better oral and written communication, critical thinking skills, management, use of technology and the problem-solving skills, research, and political practice. At he same time, the Department offers a study program that leads to the following academic degree:

BACHELOR OF ARTS WITH A MAJOR IN SOCIAL WORK

Curricular sequence

Summary of credits:

General Education requirements	63
Core requirements	41
Electives in Humanities	6
Electives in related areas	9
Free electives	12
Total	**131**

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I[1]	3
CISO3121	Introduction to Social Sciences I	3
HUMA3021	Cultural Manifestations of Western Man I[2]	3
CIBI3001	Fundamentals of Biology I.	3
INTD3005	Introduction to University Life[3]	2
	Total	17

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II[4]	3
CISO3122	Introduction to Social Sciences II	3
HUMA3022	Cultural Manifestations of Western Man II[5]	3
CIBI3002	Fundamentals of Biology II.	3
MATE3008	Mathematics for Social Sciences[6]	3
	Total	18

[1] This course can be substituted by INGL3103.
[2] This course can be substituted by HUMA3101 or HUMA3201.
[3] This course will be counted as a free elective of 2 credits (Approved or Not Approved)
[4] This course can be substituted by INGL3104.
[5] This course can be substituted by HUMA3102 or HUMA3202.
[6] This course can be substituted by MATE3001.

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3201	Introduction to Literary Genres I[7]	3
INGL3201	Grammar, Composition and Analytical Reading I[8]	3
ECON3005	Introduction to Economy[9]	3
CIPO3011	Principles and Problems of Political Sciences	3
SOCI3245	Principles of Sociology	3
TSOC3005	Social Wellbeing	3
	Total	18

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3202	Introduction to Literary Genres II[10]	3
INGL3202	Grammar, Composition and Analytical Reading II[11]	3
CISO3155	Fundamentals of Statistical Reasoning	3
PSIC3005	General Psychology	3
HIST3245	History of Puerto Rico - Compendium[12]	3
TSOC3015	Social Work as a Profession	3
	Total	18

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
TSOC4001	Human Behavior and Social Environment I	3
TSOC3131	Scientific Research in Social Work I	3
TSOC4055	Social Welfare Policy and Services	3
XXXX	Elective in Humanities	3
XXXX	Free elective	3
XXXX	Area related to social welfare	3
	Total	18

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
TSOC4015	Professional Practice I	3
TSOC4002	Human Behavior and Social Environment II	3
TSOC3132	Scientific Research in Social Work II	3
XXXX	Elective in Humanities	3
XXXX	Free elective	3
XXXX	Free elective in area related to social wellbeing	3
	Total	18

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
TSOC4025	Professional Practice II	3
TSOC4091	Field Practice I	4
TSOC4105	Community Development Processes	3
XXXX	Free elective	2
	Total	12

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
TSOC4035	Professional Practice III	3
TSOC4092	Field Practice II	4
XXXX	Area related to social welfare	3
XXXX	Free elective	2
	Total	12

Courses related to Social Work:

Code	Course	Crs.
TSOC3025	Child Welfare Services in Puerto Rico	3
TSOC3075	Health and Human Services	3
TSOC3095	Process of Aging	3
TSOC3115	Poverty and Inequality	3
TSOC4045	Community Service Organizations	3
TSOC4145	Mental Conditions and Behavior Disorders	3
TSOC4046	Strategies and Techniques for Working with Community Groups	3

Notes:

- Students admitted to the Department of Social Work from August 2006 must approve the core courses with a minimum grade of C.
- The Department of Social Work does not gives course credits for life or work experiences for any course that constitutes a requirement to the curriculum of classes of the Bachelor in Social Work, specially the courses of Field Practice I (TSOC 4091) and Field Practice II (TSOC4092).
- The Department of Social Work is governed by the *Procedure to file and ventilate complaints, except of grades of the UPRH's students,* approved by the Academic Senate, as established in Certification No. 2016-2017-013.
- The Department of Social Work will follow the *Procedures for the segregation of students for academic and professional reasons into social work educational programs,* as approved by the Academic Senate, according to Certification Num. 1999-2000-80 (See the document in the *Student's Guide and Field Practice Guide of the* Department of Social Work).
- The Department of Social Work does not discriminate in its academic offerings based on age, sex, gender, race, color, nationality, origin, or social condition, nor for political or religious ideas and, or any functional diversity. This policy complies with the *Procedures for the management of discriminatory situations by sex or gender at the University of Puerto Rico,* as established in Certification 101 (2021-2022) approved by the Governing Board of the University of Puerto Rico, the laws and government statutes; including the

[7] This course can be substituted by ESPA3211, ESPA4221 o ESPA4231.
[8] This course can be substituted by INGL3221.
[9] This course can be substituted by ECON4036.
[10] This course can be substituted by ESPA3212, ESPA4222 or ESPA4232.
[11] This course can be substituted by INGL3222.
[12] This course can be substituted by HIST3241 or HIST342.

Federal Rehabilitation Law of 1973, Title IX, as amended, and the ADA *(Americans with Disabilities Act)* of 1992.

- The Department of Social Work has as a policy that the performance evaluation of the learning results of the students in the program is an essential component in competency-based education. The assessment provides evidence that students have demonstrated the level of achievement required to initiate professional practice as Generalist Social Workers.
- The Department of Social Work **does not assign** students to Practical Instruction Centers where the student works as an employee or where the student provides services as a volunteer employee.

COURSE DESCRIPTIONS

TSOC-3005. SOCIAL WELLBEING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. This is the first course of the Social Work major. In it, the concept and context of social issues are studied from different theoretical approaches. Current issues in the Puerto Rican society are identified and analyzed. Basic concepts of social welfare, its origin and development are defined and discussed in terms of its history, philosophy, as well as its economic, social, and political components. Also, basic social needs, human and civil rights, and the responsibility of the State in satisfying these needs are discussed. The current structure and organization of social welfare services in Puerto Rico and international social welfare organizations are studied. Students prepare two oral presentations during the course. The first presentation will be focused on results from descriptive research on a social problem in Puerto Rico and the second will describe, compare and evaluate the organizational structure and roles of the governmental social welfare agencies from Puerto Rico in contrast with similar international organizations.

TSOC-3015. SOCIAL WORK AS A PROFESSION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121 Y CISO-3122. Corequisite(s): None. This course studies the profession of Social Work within the context of social welfare and the dynamics of social processes. The historical development of the United States of America and Puerto Rico is studied. Fundamental components of professional practice and the basic competencies required are analyzed. The profession functions are examined from different theoretical and ideological approaches. Communal sanction and the profession's organization in Puerto Rico, United States of America, and internationally are studied, as well as legal requirements for the professional practice. The profession's ethical and evaluative aspects are analyzed, emphasizing those concerning social justice and diversity. Finally, different governmental and non-governmental organizations where the profession is exercised in Puerto Rico are presented.

TSOC-3025. CHILD WELFARE SERVICES IN PUERTO RICO. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. This is a course of areas related to social welfare of the Department of Social Work. Studies the historical background of child protection services and the principles on which they are based. Analyzes the problems affecting the child's comprehensive development from an ecosystem perspective. Also, it is considered the several manifestations of inequality and oppression suffered by children in a global context. Identifies and analyzes the different types of abuse, the indicators and how these affect the children physically and emotionally. Discusses the laws and their application. The programs and services developed to promote the welfare of children are analyzed from a critical perspective.

TSOC-3075. HEALTH AND HUMAN SERVICES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. This course is related to the area of Social Welfare of the Department of Social Work. Presents the health-illness continuum from its social dimension. Uses two theoretical approaches, functionalism and of conflict, in the analysis of how social factors shape the health problems. The health concept is discussed as a personal right. The incidence and prevalence of the principal health problems in Puerto Rico are studied, as well as the programs and services established to confront them. The content of the course is emphasized in the discussion of health as an instrument of social, individual, and collective development.

TSOC-3095. PROCESS OF AGING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. This course is related to the area of Social Welfare of the Department of Social Work. Analyzes the process of aging from a multidimensional view. Emphasizes in the typical and atypical of the process. Misconceptions and prejudices in the process of aging are discussed. Studies the older person from comprehensive setting, which includes the consideration of biological, psychological, social, and cultural factors. Aspects related to the process of aging are analyzed, such as the different theoretical approaches that explain them, the elders' characteristics, and problems. Legislation, programs, and services available are the object of extensive discussion, especially when related to Puerto Rico. The course analyses the ethical conflicts and value attitudes that can emerge from the intervention with this community. Exercises are used to expose students to this analysis.

TSOC-3115. POVERTY AND INEQUALITY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. This course is related to the area of Social Welfare of the Department of Social Work. In it the basic concepts related to poverty and inequality are discussed. Its meaning is studied considering different definitions of the term. The causal factors of poverty and social and economic inequality are analyzed from different theoretical approaches, as well as the elements that contribute to their continuance. It emphasizes the view offered by poverty and inequality as events of structural origin and the existing relation between poverty and other social problems affecting health, education, housing, migration, and social participation. Poverty and inequality manifestations in several groups with risks of oppression and exclusion by age, genre, ethnic origin, nationality, physical or mental challenges, social class, among others, are considered. Programs and social services established to promote social and economic justice are analyzed from a critical perspective. Poverty and inequality are studied in the Puerto Rican society and in a global context. Emphasizes the development of an economic model, the extent of poverty at present time and the affected social groups.

TSOC-3131. SCIENTIFIC RESEARCH IN SOCIAL WORK I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TSOC-3005, TSOC-3015, MATE-3008. Corequisite(s): TSOC-4001, TSOC-4055. This is a core course and the first one of a two-course sequence in the research area. It is offered during the first semester of the curricular sequence's third year. Is aimed at students to obtain knowledge and to develop the basic skills in social research methods and techniques. The course focuses on the discussion of scientific research and its utility in the construction of knowledge for a practice based on evidence, programs and services evaluation, and the assessment of the professional practice in Social Work. Also, the scientific method, research premises, methods, and techniques of quantitative and qualitative approaches in science are discussed. Ethical aspects involved in research, emphasizing on those that protect the principles of auto determination, informed consent, and dignity of human beings, especially on those populations that have limited access to sources of power and scientific knowledge are analyzed. Students organize in workgroups and integrate knowledge about developing problems of research, literature review, design of a theoretical framework, establishment of research questions, hypothesis drafting and types of analysis, and the design of a methodology model through the elaboration of a proposal which has to be submitted at the end of the course. This process is developed using the methodology of learning through service.

TSOC-3132. SCIENTIFIC RESEARCH IN SOCIAL WORK II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TSOC-3131, CISO-3155, TSOC-4001, TSOC-4055. Corequisite(s): TSOC-4002, TSOC-4015. This is a core course and is the second of a two-course sequence from the research area. It is offered during the second semester of the curricular sequence's third year. In it the processes of data recollection, analysis, and presentation are emphasized based on quantitative and qualitative models, using computer technologies and programs used in the profession of Social Work. The students evidence the inclusion of knowledge and skills through presentations and disclosure of the research findings on the *"day of research presentations"*. This research is carried out at the end of the semester, inviting the research applicants, thus complying with the methodology of learning through service.

TSOC-4001. HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TSOC-3005, TSOC-3015, SOCI-3245, PSIC-3005, CIPO-3011, ECON-3005[13], CIBI-3001. Corequisite(s): TSOC-3131, TSOC-4055. This is a core course and is the first of a sequence of two. It facilitates the comprehension of human beings as a unique people, family members, small groups, organizations, and communities. In the course, the theoretical approaches general systemic, echo systemic, of strengths and resilience, are used. These approaches are associated with the evaluative and ethical aspects of the profession in the study of human behavior. The emphasis of this course is aimed at the macro-structural study considering the aspects of human diversity, populations at risk of oppression, discrimination, marginalization, and exclusion. Aspects related to ethnicity, gender, sexual orientation, migratory processes, social classes, functional diversity, family structure, religion, and spirituality, among others, are discussed. Promotes the integration of students in organizations and social movements related to the processes of social and economic justice in Puerto Rico, in particular those of the eastern region.

TSOC-4002. HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TSOC-4001, CIBI-3002. Corequisite(s): TSOC-3132, TSOC-4015. This is a core course, the second of a sequence of two. In it is presented the human being's behavior in their social environment from a life cycle perspective with emphasis in the bio-psycho-socio-cultural development. The development of the human being is discussed in his social environment from the pre-natal stage until death. The evolution of the person is described from the development tasks, applying the main theoretical approaches about behavior. The course gives special attention to the ways that social systems promote

[13] This course can be substituted with ECON4036- Economic and Social Development of Puerto Rico.

or restrict achievement and maintaining an integral health and social wellbeing, particularly in the Puerto Rican society. It is focused on the analysis to guide the process of assessing the person as a member of a family, groups, organizations, and communities. Facilitates a theoretical ground on which students develop skills for the practice of Social Work.

TSOC-4015. PROFESSIONAL PRACTICE I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TSOC-3131, TSOC-4001, TSOC-4055. Corequisite(s): TSOC-4002, TSOC-3132. This is a core course, the first of the four courses that compose the curricular sequence of Professional Practice. It is offered to students of the Program in the second semester of their third year of studies. In it, basic concepts and purposes of the general practice of Social Work are presented and discussed. The professional relation and the values and elements that characterize it are emphasized, such as: empathy, respect, authenticity, auto determination, and confidentiality. Exercises are analyzed and used for studying the ways on which beliefs, feelings, and personal values may affect professional relations. Attention is given to the following variables: ethnicity, gender, sexual orientation, migratory processes, social classes, functional diversity, family structure, religion, and spirituality, among others. The main study theme in this course is the interview, as a particular form of communication in Social Work. Its characteristics, the main elements that compose it, as well as the basic skills are identified. The course ends with a general approach of case-record writing, its purposes, and different styles.

TSOC-4025. PROFESSIONAL PRACTICE II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TSOC-4015. Corequisite(s): TSOC-4091, TSOC-4105. This is the second core course of a sequence of four courses from the professional practice of Social Work. The theoretical approaches that are part of the professional intervention process and its relationship with the scientific method are discussed and analyzed. In the course it is provided for the students to deepen in knowledge, values, and skills required for the establishment of the professional relation, assessment, intervention, and evaluation. It emphasizes the aspects related with the progress evaluation of the professional intervention. The design of the course allows the discussion of global and local social situations, in particular on the East region which includes the *Route of Poverty.* Also, incorporates those areas that are intervened by students in Practical Instruction. This facilitates the integration of class discussions with the values and professional ethics, thus promoting the analysis of the interaction with diversity factors: age, sex, gender, race, color, nationality, origin, social and/or economic condition, political and religious ideas, and functional diversity (physical or mental challenges).

TSOC-4035. PROFESSIONAL PRACTICE III. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TSOC-4025, TSOC-4091. Corequisite(s): TSOC-4092. This is the last core course of a sequence of four courses of the professional general practice of Social Work. The course considers the method of problem solving in social work practice with families, groups, and crisis intervention. For the study of these, theoretical approaches of systems and the ecosystem perspectives of strengths and resilience are used. In the content, emphasis is given to the work with groups, the membership roles and the models of Social Work Group. Also, the phases of professional intervention while working with groups are analyzed, as well as the adequate techniques and strategies for this methodology. The group methodology is studied and applied when working with excluded groups, victims of oppression, and populations at risk of oppression, discrimination, marginalization, and exclusion, and the promotion of the consent of these. In this course, the method of intervention with families in the process of professional help is discussed. It deepens in the application of the theoretical systemic approach, strengths and resilience in work, and interventions with families. Works with the professional intervention in the family so it can identify needs and areas of opportunities for these to access resources. In this course, subjects related to values and ethical dilemmas that come up when working with crisis, different types of groups, and families are discussed.

TSOC-4045. COMMUNITY SERVICE ORGANIZATIONS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TSOC-3005, TSOC-3015, TSOC-4001. Corequisite(s): None. This is a course of the areas related to social welfare of the Department of Social Work. Discusses the nature of social service organizations within the socio-cultural context of Puerto Rico and other countries. In this, knowledge and skills are integrated for Social Work practice in community-based service organizations which serves a diversity of communities at risk of discrimination and oppression. Emphasis is given on institutions that serve individuals, groups, families, and communities, in conditions of social and cultural inequality, health, family integration, education, homelessness, teen pregnancy, dropouts, physical and mental challenges, among other social needs and problems. Students are related with the social organizations' history, study the organizational theoretical perspectives and the behavioral components, structure, and processes, as well as the reciprocal effect among the community and its organizations. Through this course, students, faculty, and personnel from a non-governmental organization (ONG, by its Spanish acronym), will collaborate in the planning and development of a social project. Strategic planning and assessment processes in the development of social services are emphasized, as well as the management and development of budgetary resources.

TSOC-4046. TRATEGIES AND TECHNIQUES FOR WORKING WITH COMMUNITY GROUPS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TSOC-3005, TSOC-3015, TSOC-4001. Corequisite(s): None. This is a course of the area related to Social Work. It is aimed at promoting the knowledge and skills development of the students, which will help to facilitate processes of formation, social and politic participation with community groups that are compromised with the transformation and social change. Starts from the systems theoretical perspective, which provides the fundamental principles to understand the relationships within a system and between social systems. Also, integrates critical theoretical approaches that inform the popular education model, as well as theoretical perspectives that serve as basis for students to develop knowledge and skills that allow them to facilitate internal strength of the different community groups, as well as to provide counseling and accompaniment in actions aimed at transforming the conditions of pressure, exclusion, and exploitation within the contemporary societies. The course has a workshop format. The methodology of popular education of work in small groups is used in class, through which the learned techniques and skills are practiced. In addition, students will prepare and present in class a project integrating the knowledge.

TSOC-4055. SOCIAL WELFARE POLICY AND SERVICES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TSOC-3005, TSOC-3015. Corequisite(s): TSOC-3131, TSOC-4001. This is a core course offered during the first semester of the third year of studies. The course is designed for the student to deepen and broaden the concept of social well-being as a comprehensive area which includes a variety of politics, programs, and services through governmental and non-governmental organizations. In it prevention, protection, and promotion of the social and economic justice of citizens. Also, elements of the political process, social values, planning, and social transformation; as well as the power relations affecting population groups, which for their diversity and difference are at risk of oppression, marginalization, discrimination, and exclusion of the social well-being are studied. Students develop skills for the critical analysis of politics and of the existing services, of their purpose and pertinence in solving and preventing social problems. Likewise, the role performed by Social Work in the social transformation, its contributions and possibilities are analyzed and evaluated. They are initiated on different political practices to bring forward the social and economic well-being, and to provide social work services. Finally, they study aspects of the social well-being in Puerto Rico and compare them with the global context.

TSOC-4091. FIELD PRACTICE I. Credits: 4. Practice hours per week: 15. Prerequisite(s): TSOC-3005, TSOC-3015, TSOC-3131, TSOC-3132, TSOC-4001, TSOC-4002, TSOC-4015, TSOC-4055. Corequisite(s): TSOC-4025, TSOC-4105. This is a core course, the first of a sequence of two. In it, students are placed in a Field Practice center for two days (15 hours per week) during the semester, supervised by a qualified practice instructor. The course provides experiences that allow students to develop professional competencies that are initiated in the Social Work practice. Also, includes a seminar aimed to discuss and enrich important aspects for the students' professional career. The focus in this course responds to the general practice of Social Work and to the development of the ten competencies required by the Social Work Accreditation Agency, *Council on Social Work Education* (CSWE). Experiences aimed to facilitate the application of the following theoretical approaches are provided: general systemic, eco-systemic, strength, resilience, and empowerment. The acquired skills in the classroom are applied to the problem-solving process with individuals, families, groups, communities, and organizations. Likewise, students integrate ethical principles of the profession, giving emphasis on respect for the human dignity, confidentiality, auto determination, and commitment with the social and economic justice, in special of those sectors that for their diversity and difference are at risk of exclusion, oppression, marginalization, and discrimination. In this course, knowledge, and skills of scientific research in Social Work related to the identification of necessities, the development of a political practice, and to other special projects are used. Students apply this knowledge in the data assessment, the development of interventions based on evidence, as well as in the evaluation of services offered and in their own practice.

TSOC-4092. FIELD PRACTICE II. Credits: 4. Practice hours per week: 15. Prerequisite(s): TSOC-3005, TSOC-3015, TSOC-3131, TSOC-3132, TSOC-4001, TSOC-4002, TSOC-4015, TSOC-4025, TSOC-4055, TSOC-4091, TSOC-4105. Corequisite(s): TSOC-4035. This is a core course, the second of a sequence of two. Students are still located in the same Field Practice center for two days (15 hours) per week during the semester, supervised by a qualified practice instructor. This implies to students a greater mastering of the norms and procedures of the agency or organization, a better knowledge of the population being served and a greater confidence in their performance. This is, the course provides experiences that allow students to demonstrate dominium of the professional competences. Also, continues with the offering of a seminar that discusses important aspects for the professional work life of students initiating in the Social Work practice. The main focus of this course relates to the practice of general social work and to the mastering of the ten competencies required by the Department of Social Work and by the Accreditation Agency, *Council on Social Work Education* (CSWE). It provides experiences aimed to facilitate the application of the following theoretical approaches: general systemic, eco systemic,

strength, resilience, and empowerment. The skills acquired in the classroom are applied to the problem-solving process with individuals, families, groups, organizations, and communities. Likewise, students integrate the ethical principles of the profession, giving emphasis in the respect for the human dignity, confidentiality, auto determination, and the commitment with social and economic justice, especially of those sectors that for their diversity and difference are at risk of exclusion, oppression, marginalization, and discrimination. In this course, knowledge and skills of scientific research in Social Work related to the identification of necessities, the development of a politic practice, and other projects are integrated. Students apply this knowledge in the data assessment, in the development of interventions based on evidence, as well as in the evaluation of the services rendered and in their own practice.

TSOC-4105. COMMUNITY DEVELOPMENT PROCESSES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TSOC-4015. Corequisite(s): TSOC-4091, TSOC-4025. This is a core course offered concurrent to the Field Practice I course (TSOC-4091) and Field Practice II course (TSOC-4025). In this course, the different notions and types of communities are presented for study. Concepts related to community competency, applicable theoretical approaches, and models used for a complete community development are studied. Structures and distribution of power, sources of community conflict, as well as the protection of human rights are analyzed. The practice process is applied at a general level, developing roles, functions, ethical and professional behavior in the community concept, and the implications of these phenomena in those sectors not represented in the power organisms and that are at risk of social and economic discrimination. Processes of citizen involvement, collective decision-making, social action, and leadership are studied. Community organization is studied as a strategy against the institutionalized forms of oppression, discrimination, marginalization, exclusion, and power control. It is provided curricular content on Social Work methodology with the communities, emphasizing in the constituent's involvement on the identification processes and study-analysis of concerns, necessities, problems and strengths, planning, execution of community actions, results evaluation, and professional performance. As part of the course, students visit different communities, interview community leaders, and present a final work on which they develop a social program or project to address necessities identified in a community or organization.

TSOC-4145. MENTAL CONDITIONS AND BEHAVIOR DISORDERS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122. Corequisite(s): None. This is a course in the area related to Social Welfare. Offers the student an opportunity to obtain a vast knowledge with respect to the conduct denominated "diverted" and its characteristics. It is recognized that the student of Social Work must know diagnostics classifications nomenclature for better communication in the professional practice scenarios. Also, presents conceptual models and the alternate services that explain the so-called mental conditions and behavioral disorders.

FACULTY

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ADMINISTRATIVE SCIENCES

Business Administration

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History and Objectives

The Department of Business Administration (ADEM, by its Spanish acronym) was established in 1967 with a Transfer program, an Associate Degree in Accounting, and an Associate Degree in Management. In the year 1980, due to the economic and industrial development of the Island's Eastern Region, the Department is authorized to offer a Bachelor in Business Administration with a Major in Human Resources and in Management. In 1982, the Bachelor in Business Administration with a Major in Accounting was approved and in 2003 the Major in International Commerce. Also, the Minor in Taxes was approved in 2003-2004; an attractive alternative for students enrolled in one of the Department's Majors. In 2020, ADEM was granted with the license for offering the Major in International Commerce completely online.

The Department of Business Administration develops professionals capable of analyzing in a critical way our economic and social reality, prepared to solve problems on local and international public and private industries. ADEM offers several undergraduate academic programs, leading the student to occupy positions of responsibility and leadership in our society and continue graduate studies on different disciplines. The mission of the Department of Business Administration is:

1. Develop professionals at an undergraduate level with an integral and ethic formation, capable to incorporate themselves in the working world, or continue graduate studies, manage or create organizations, and compromise with the economic and social development of Puerto Rico from a local and international perspective.
2. Maintain a faculty compromised with the development of professionals having analytical and technological skills, with leadership capacity, entrepreneurship, and multicultural sensibility, which will allow them to be successful in an environment of global interdependence.
3. Promote academic and investigative activities for Puerto Rico, Latin America, and the Caribbean.

The vision of the Department of Business Administration is to become a leader center in the Caribbean of integral learning in the areas of development in Business Administration, at a local and international level.

The Department's values are: 1) Personal and professional integrity, 2) Mutual respect and equity, 3) Excellence and innovation, 4) Social responsibility, 5) Leadership.

In 2012, the accreditation from the *Accreditation Council for Business School and Programs (ACBSP*) was granted to the Department until 2022.

The graduates from our programs have the skills to conduct research, and the interpersonal skills of communication, of leadership and of entrepreneurial creativity to promote the changes that a highly technological society needs. Also, have a multidisciplinary and professional general education that allow them to create and manage organizations with a high sense of commercial ethics and social responsibility.

The Department has three classrooms equipped with computers to offer courses that require the use of information systems and an open laboratory with 20 microcomputers for student use. Also, all the classrooms have a podium equipped with a personal computer (PC), a documentary camera, DVD, VHS, and a digital projector.

Academic Programs

The Department offers a bachelor in Business Administration with four choices of majors in:

International Commerce
Accounting
Management
Human Resources

Also:
Minor in Taxes.

Online Program:
International Commerce, Totally Online

BACHELOR IN BUSINESS ADMINISTRATION WITH MAJOR IN INTERNATIONAL COMMERCE

The Major in International Commerce of the BBA prepares you to understand the processes leading to an exchange of goods and services between the world's nations. Student of the BBA with major in International Commerce will have an overview of historical, cultural, geographical, and economical aspects of the world's nations

Curricular Sequence

Summary of credits:

Liberal art courses……54
Professional courses ……37
Core courses……19
Core electives……9
Free electives……12
Total……131

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
CISO3121	Introduction to Social Sciences I	3
CIFI3001	Introduction to Physical Sciences I ***or***	3
CIBI3001	*Fundamentals of Biology I.*	
MECU3031	Quantitative Methods for Business Administration I	3
SICI3115	Computational Skills	0
	Total	15

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
CISO3122	Introduction to Social Sciences II	3
CIFI3002	Introduction to Physical Sciences II	3
	or	
CIBI3002	*Fundamentals of Biology II.*	
HIST3245	History of Puerto Rico – Compendium	3
ADMI3005	Administrative Theory	3
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESCO3001	Psychology of Written Communication I	3
GEOG3016	World's Geography	3
ESTA3041	Statistics I	3
ECON3155	Principles of Microeconomics	3
CONT3005	Elementary Accounting I	4
	Total	16

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
INCO3005	Business Communication I	3
ESTA3042	Statistics II	3
ECON3165	Principles of Macroeconomics	3
CONT3006	Elementary Accounting II	4
ADMI3205	Introduction to International Commerce	3
	Total	16

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
HUMA3021	Cultural Manifestations of Wester Man I	3
FINA4105	Principles of Finance	4
MERC3115	Principles of Marketing	3
COIN4307	Legal Aspects in International Commerce	4
	Language course I[1]	3
	Total	17

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
HUMA3022	Cultural Manifestations of Western Man II	3
FINA4028	International Finance	3
MERC4005	International Marketing	3
GEOP3005	Operations Management	3
	Language course II[2]	3
	Core elective	3
	Total	18

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
COIN4305	Methods and Techniques of Research in Business Administration[3]	2
ADMI4115	Entrepreneurship	2
	Language course III	3
	Free elective	3
	Free elective	3
	Core elective	3
	Total	16

[1] All language courses must be in levels. This is, Part I and Part II.
[2] This course should be a continuation of Language I course. In the case of French language, must follow the sequence established for the course. (Consult with the Academic Advisor.)
[3] Student enrolled in the course COIN4305, must take the corequisite course COIN4225 – Electronic Bibliographical Resources.

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
COIN4405	Study Trip[4] ***or***	3
COIN4406	*International Commerce Internship* ***or*** *Exchange Program* [5] ***or*** *Research Project*[6]	
COIN3405	Global Strategic Management	3
	Free elective	3
	Free elective	3
	Core elective	3
	Total	15

BACHELOR IN BUSINESS ADMINISTRATION WITH MAJOR IN INTERNATIONAL COMMERCE, ONLINE

Curricular Sequence

(for students admitted since August 2021)

Summary of credits:

Liberal art courses.....54
Professional courses 37
Core courses.....19
Core electives.....9
Free electives.....12
Total.....131

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
CIFI3001	Introduction to Physical Sciences I ***or***	3
CIBI3001	*Fundamentals of Biology I.*	
ADMI3005	Administrative Theory	3
SICI3115	Computational Skills	0
ECON3155	Principles of Microeconomics	3
	Total	15

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
CIFI3002	Introduction to Physical Sciences II ***or***	3
CIBI3002	*Fundamentals of Biology II.*	
ECON3165	Principles of Macroeconomics	3
ADMI3205	Introduction to International Commerce	3
MECU3031	Quantitative Methods for Business Administration I	3
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESCO3001	Psychology of Written Communication I	3
GEOG3016	World's Geography	3
ESTA3041	Statistics I	3
CONT3005	Elementary Accounting I	4
CISO3121	Introduction to Social Sciences I	3
	Total	16

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
INCO3005	Business Communication I	3
ESTA3042	Statistics II	3
HIST3245	History of Puerto Rico – Compendium	3
CONT3006	Elementary Accounting II	4
CISO3122	Introduction to Social Sciences II	3
	Total	16

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
HUMA3021	Cultural Manifestations of Wester Man I	3
FINA4105	Principles of Finance	4
MERC3115	Principles of Marketing	3
COIN4307	Legal Aspects in International Commerce	4
XXXX	Language course I[7]	3
	Total	17

[4] Student who opts for the study trip must enrolled in this course during the las semester, before completing his/her degree. However, the Program's demand and other factors affecting the programming of the study trip, may require adjustments to this requisite. This course is generally offered every two years.

[5] Student who opts for the exchange program will have to report immediately, before and after the exchange, with the program's coordinator and with the academic advisor to evaluate if he/she qualifies for the term in which the course COIN4405 is offered.

[6] Student who opts for this course should get enrolled through the Honors Program and communicate with the Honors Program Director. The course code will be PREH4985 – Honors Program Undergraduate Thesis. To be enrolled in this course the student must have approved the course COIN4305 – Methods and Techniques of Research in Business Administration.

[7] All language courses must be in levels. This is, Part I and Part II.

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
HUMA3022	Cultural Manifestations of Western Man II	3
FINA4028	International Finance	3
MERC4005	International Marketing	3
GEOP3005	Operations Management	3
	Language course II[8]	3
XXXX	Core elective	3
	Total	18

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
COIN4305	Methods and Techniques of Research in Business Administration[9]	2
ADMI4115	Entrepreneurship	2
	Language course III	3
XXXX	Free elective	3
XXXX	Free elective	3
XXXX	Core elective	3
	Total	16

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
COIN4405	Study Trip[10] ***or***	3
COIN4406	*International Commerce Internship* ***or*** *Exchange Program* [11]***or*** *Research Project*[12]	
COIN3405	Global Strategic Management	3
XXXX	Free elective	3
XXXX	Free elective	3
XXXX	Core elective	3
	Total	15

Core electives:

Students may opt to complete their 9 core elective credits by three alternatives, with the academic advisor's recommendation and subject to availability of the courses on other departments.

1. Core electives in functional area of International Commerce. Take 9 credits in courses of functional area. May select from the following courses:

Code	Course
CONT4047	Introduction to International Accounting
COIN4306	Behavior in International Organizations
COIN4105	International Commerce Protocol
COIN4215	International Administration of Human Resources
COIN4205	Operations Management and Global Logistics
COIN4225	Electronic Bibliographical Resources
COIN4106	Imports and Exports
ECON4056	Environmental Economy
ECON4085	International Economy
REHU4005	Business Ethics

2. Students interested in pursuing a Master in Business Administration must take the course MECU3032. This course will be considered as a recommended core elective.
3. Interdisciplinary Electives. The student may take, in consultation with the Academic Advisor, courses of other disciplines that contribute to the major objectives.

BACHELOR IN BUSINESS ADMINISTRATION WITH MAJOR IN ACCOUNTING

This Major integrates General Education with the Administration fundamentals and the Accounting concepts and practices, with emphasis in communication, analysis and problem solving skills. The Accounting profession has a key responsibility in the offering of its services to users, because of the emphasis on providing financial information in a transparent, objective, reliable and impartial way, giving special support to the business decision-making process of economic nature. Financial activities affecting all types of organizations, are disclosed. People who study Accounting will obtain the needed competences and skills to collect, register, process and communicate information to profit and non-profit organizations, public or privates, among others, concerning information systems, procedures and auditing regulations, as well as the taxes aspect.

Curricular Sequence

Summary of credits:

Liberal art courses.....33
Professional courses required.....77
Core courses required.....16
Free electives.....4
Recommended core electives.....7
Total.....137

[8] This course should be a continuation of Language I course. In the case of French language, must follow the sequence established for the course. (Consult with the Academic Advisor.)

[9] Student enrolled in the course COIN4305, must take the corequisite course COIN4225 – Electronic Bibliographical Resources.

[10] Student who opts for the study trip must enrolled in this course during the las semester, before completing his/her degree. However, the Program's demand and other factors affecting the programming of the study trip, may require adjustments to this requisite. This course is generally offered every two years.

[11] Student who opts for the exchange program will have to report immediately, before and after the exchange, with the program's coordinator and with the academic advisor to evaluate if he/she qualifies for the term in which the course COIN4405 is offered.

[12] Student who opts for this course should get enrolled through the Honors Program and communicate with the Honors Program Director. The course code will be PREH4985 – Honors Program Undergraduate Thesis. To be enrolled in this course the student must have approved the course COIN4305 – Methods and Techniques of Research in Business Administration.

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
ADMI3006	Introduction to Commerce	3
CONT3005	Elementary Accounting I	4
MECU3031	Quantitative Methods for Business Administration I	3
	Total	16

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
CONT3006	Elementary Accounting II	4
MECU3032	Quantitative Methods for Business Administration II	3
ADMI3005	Administrative Theory	3
	Total	16

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESTA3041	Statistics I	3
CONT4307	Intermediate Accounting I	4
CISO3121	Introduction to Social Sciences I	3
SICI4105	Computer Tools in Business Administration	3
ESCO3001	Psychology of Written Communication I	3
	Total	16

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
CONT4308	Intermediate Accounting II	4
ESTA3042	Statistics II	3
CISO3122	Introduction to Social Sciences II	3
ESCO3002	Psychology of Written Communication II	3
ECON3007	Principles of Economy	3
	Total	16

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
DEME4005	Business Law	4
CIFI3001	Introduction to Physical Sciences I ***or***	3
CIBI3001	*Fundamentals of Biology I*	
INCO3005	Business Communication I	3
MERC3115	Principles of Marketing	3
PSIC3005	General Psychology	3
XXXX	Recommended Elective	3
	Total	19

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
INCO3126	Conversational English for Students of Business Administration	2
GEOP3005	Operations Management	3
CIFI3002	Introduction to Physical Sciences II	3
	or	
CIBI3002	*Fundamentals of Biology II*	
CONT4325	Cost Accounting	4
INCO3006	Business Communication II	3
FINA3006	Commercial Finance	3
	Total	18

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
ECON4036	Economic and Social Development of Puerto Rico	3
CONT4075	Theory and Practice of Auditing	4
REHU4408	Organizational Behavior	3
FINA3007	Money and Banking	4
HUMA3021	Cultural Manifestations of Western Men I	3
	Total	17

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
INCO3027	Report Writing	2
REHU4005	Business Ethics	3
HIST3245	History of Puerto Rico – Compendium	3
HUMA3022	Cultural Manifestations of Western Men II	3
XXXX	Recommended elective	4
XXXX	Free elective	4
	Total	19

Recommended Electives in Accounting

Code	Course	Crs.
CONT4045	Advanced Accounting	4
CONT3009	Puerto Rico Taxes	4
CONT4007	Federal Income Taxes	3
CONT4006	Managerial Accounting	3
CONT4077	Accounting Skills Development	4
CONT4020	Accounting for Non-Profit Organizations	4
CONT3115	Computerized Accounting	4
CONT4016	Current Developments in Accounting	3
CONT4047	International Accounting	4

BACHELOR IN BUSINESS ADMINISTRATION WITH MAJOR IN HUMAN RESOURCES

The Bachelor in Business Administration with a Major in the management of Human Resources prepares professionals able to perform in the administration of capital and human talent within an organization. The graduate of this program will have the necessary capacity and skills to elaborate and operate strategies for the selection of human resources, develop and design work plans for the organization's personnel, as well as promote alternatives for education, development, and motivation. Also, it promotes good relations among

employees, encouraging the teamwork, as well as the strengthening of this relations. These professionals are the facilitators among the personnel, and are the leaders in the evaluation of the work environment where the organization personnel are undertaking.

Curricular Sequence

Summary of credits:

Liberal art courses.....33
Professional courses required.....77
Core courses required.....9
Recommended core electives.....12
Free electives.....6
Total.....137

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
CIFI3001	Introduction to Physical Sciences I ***or***	3
CIBI3001	*Fundamentals of Biology I.*	
ADMI3006	Introduction to Commerce	3
MECU3031	Quantitative Methods for Business Administration I	3
	Total	15

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
CIFI3002	Introduction to Physical Sciences II ***o***	3
CIBI3002	*Fundamentals of Biology II.*	
ADMI3005	Administrative Theory	3
MECU3032	Quantitative Methods for Business Administration II	3
SICI4105	Computer Tools in Business Administration	3
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESTA3041	Statistics I	3
REHU4405	Human Resources Management	3
CONT3005	Elementary Accounting I	4
CISO3121	Introduction to Social Sciences I	3
ESCO3001	Psychology of Written Communication I	3
	Total	16

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
ESCO3002	Psychology of Written Communication II	3
ESTA3042	Statistics II	3
CONT3006	Elementary Accounting II	4
MERC3115	Principles of Marketing	3
CISO3122	Introduction to Social Sciences II	3
XXXX	Recommended Elective	3
	Total	19

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
ECON3007	Principles of Economy	3
DEME4005	Business Law	4
INCO3005	Business Communication I	3
GERE3675	Managerial Communication	3
PSIC3005	General Psychology	3
XXXX	Recommended Elective	3
	Total	19

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
GEOP3005	Operations Management	3
FINA3006	Commercial Finance	3
FINA3007	Money and Banking	4
INCO3006	Business Communication II	3
XXXX	Recommended elective	3
	Total	16

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
ECON4036	Economic and Social Development of Puerto Rico	3
INCO3126	Conversational English for Students of Business Administration	2
REHU4408	Organizational Behavior	3
GEOP4037	Decisional Process	3
HUMA3021	Cultural Manifestations of Western Men I	3
XXXX	Free elective	3
	Total	17

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
INCO3027	Report Writing	2
REHU4005	Business Ethics	3
HIST3245	History of Puerto Rico – Compendium	3
HUMA3022	Cultural Manifestations of Western Men II	3
XXXX	Recommended elective	3
XXXX	Free elective	3
	Total	17

Recommended electives in Human Resources:

Code	Course	Crs.
REHU4406	Labor-Management Relations	3
REHU4046	Industrial Psychology	3
REHU4407	Wages and Salaries Administration	3
REHU3025	Industrial Supervision	3
ADMI4205	Management and Human Resources Internship	3
REHU4410	Training and Development of Human Resources	3
REHU4419	Labor Law	3

BACHELOR IN BUSINESS ADMINISTRATION WITH MAJOR IN MANAGEMENT

The Management profession prepares professionals to occupy positions of high hierarchy in the personnel organizational chart of a business organization, institution or company, or some sector (office, department, division, or workgroup) whose mission is to guide, lead, direct and coordinate different areas of the institution, managing efficiently the resources to obtain the maximum benefits. Some companies have only one manager, while in others is a group of managers reporting to a higher level (general manager, finance manager, human resources manager, production manager, among others). In addition to the management functions, a manager is in charge of contracting the managerial positions and key personnel, the performance evaluation of his/her work team, the compliance of the different areas' objectives, the planning and establishments of goals to be fulfilled in a short or mid-term, the annual budgets and the reports developed for the top management, as required by the company.

Curricular Sequence

Summary of credits:

Liberal art courses.....33
Professional required courses.....77
Core courses required.....9
Recommended core electives.....12
Free electives.....6
Total.....137

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
ADMI3006	Introduction to Commerce	3
CIFI3001	Introduction to Physical Sciences I ***or***	3
CIBI3001	*Fundamentals of Biology I.*	
MECU3031	Quantitative Methods for Business Administration I	3
	Total	15

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
ADMI3005	Administrative Theory	3
CIFI3002	Introduction to Physical Sciences II	3
	or	
CIBI3002	*Fundamentals of Biology II.*	
MECU3032	Quantitative Methods for Business Administration II	3
SICI4105	Computer Tools in Business Administration	3
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESCO3001	Psychology of Written Communication I	3
ESTA3041	Statistics I	3
REHU4405	Human Resources Management	3
CONT3005	Elementary Accounting I	4
CISO3121	Introduction to Social Sciences I	3
	Total	16

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
ESCO3002	Psychology of Written Communication II	3
ESTA3042	Statistics II	3
CONT3006	Elementary Accounting II	4
MERC3115	Principles of Marketing	3
CISO3122	Introduction to Social Sciences II	3
XXXX	Recommended elective	3
	Total	19

THIRD YEAR – FISRT SEMESTER

Code	Course	Crs.
ECON3007	Principles of Economy	3
DEME4005	Business Law	4
INCO3005	Business Communication I	3
PSIC3005	General Psychology	3
GERE3675	Managerial Communication	3
XXXX	Recommended elective	3
	Total	19

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
GEOP3005	Operations Management	3
FINA3006	Commercial Finance	3
INCO3006	Business Communication II	3
FINA3007	Money and Banking	4
XXXX	Recommended elective	3
	Total	16

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
ECON4036	Economic and Social Development of Puerto Rico	3
INCO3126	Conversational English for Students of Business Administration	2
REHU4408	Organizational Behavior	3
GEOP4037	Decisional Process	3
HUMA3021	Cultural Manifestations of Western Man I	3
XXXX	Free elective	3
	Total	17

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
INCO3027	Report Writing	2
REHU4005	Business Ethics	3
HIST3245	History of Puerto Rico – Compendium	3
HUMA3022	Cultural Manifestations of Western Man II	3
XXXX	Recommended elective	3
XXXX	Free elective	3
	Total	17

Recommended electives in Management

Code	Course	Crs.
ADMI4065	Industrial Management	3
GEOP4318	Quality Control	3
GEOP4317	Industrial Security	3
REHU4046	Industrial Psychology	3
REHU3025	Industrial Supervision	3
GEOP4325	Purchases and Materials Management	3
ADMI4205	Management and Human Resources Internship	3

MINOR IN TAXES

The Minor in Taxes has the objective to prepare students to confront the compliance, planning and analysis of contributive situations. Will allow to increase the logical knowledge in order to provide solutions through the study of sources of research and corresponding contributive procedures. Also, it is expected that the student understands the technical concepts and applies laws related to different kind of taxes for different types of taxpayers. Consist of 13 credits.

Code	Course	Crs.
CONT3009	Puerto Rico Taxes	4
CONT4007	Federal Income Taxes	3
CONT4115	Corporations and Partnerships Income Taxes	3
CONT4215	Practice Research in Taxes	3
	Total	13

These courses go hand in hand with the requirements leading to the Bachelor's academic degree to which the student is officially classified. Students will complete this Minor within the 150 percent of the time prescribed.

COURSE DESCRIPTIONS

ADMI-3005. ADMINISTRATIVE THEORY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Study of administration as a coordination process, as well as the functions and procedures executed in this process and the different approaches in the study of administration, with special emphasis in the approach of behavioral scientists, principles of responsibility, authority, organization, and ethics. Problems of centralization and decentralization, human conduct in the organization and group behavior. Emphasis is given to relations among individuals and groups in the process of administration, planning, organization, direction, and control. ***Quality Matters seal.***

ADMI-3006. INTRODUCTION TO COMMERCE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The objective of this course is to familiarize the student with the commerce nature and the environment in which it operates. Expanding the commercial terminology will give him/her the social and environmental existing opportunities, as well as existing job opportunities.

ADMI-3016. ADMINISTRATIVE THEORY OF COMMUNICATION MEDIA. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course is aimed at students interested in media organization and administration, whether organizing their own business or administrating and supervising existing businesses. It is designed to expose the student, in a practical and theoretical way, to real experiences in order to foment excellence in the most relevant formation about productivity, effectiveness and efficiency from the administrative functions point of view and its application in an educational and communication environment.

ADMI-3205. INTRODUCTION TO INTERNATIONAL COMMERCE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADMI-3005. Corequisite(s): ECON-3155. This course intends to expose students to the internationalization process and to concepts pertaining to this interesting world dynamic, namely: cultural, legal, and economic environment, foreign investment, rates of change, etc.

ADMI-3675. ADMINISTRATION TENDENCIES IN AN INTERNATIONAL CONTEXT. Credits: 6. Lecture hours per week: 6. Prerequisite(s): None. Corequisite(s): None. Consists of an exchange of students and professors from a foreign university and the University of Puerto Rico at Humacao in order to share educational experiences related with the business administration tendencies in an international context. Students and professors at both universities will participate in a learning community, reinforced with visits to companies and cultural-historical places of the origin country. In addition to the teaching in classrooms, aspects of the business operations in both countries will be revealed. This is a non-traditional course that has an examination component to determine the origins of the differences in business administration applied to these countries in areas of accounting, marketing, operations, corporative laws, and organizational behavior, among others. Students will have the option to repeat the course provided that the visit constitutes a different experience in another country.

ADMI-3676. FUNDAMENTS OF FINANCE, ECONOMY AND MARKETING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CONT-4065, MATE-3001. Corequisite(s): None. Study of general business concepts needed by the office professional, with emphasis in basic fundaments of finance, economy, and marketing. This course will be offered in "team teaching" modality.

ADMI-4065. INDUSTRIAL ADMINISTRATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADMI-3005. Corequisite(s): None. Theoretical and practical implications of modern scientific administration in an industry or commerce. Process, procedures and equipment for economic production, application of economy to management, techniques of planning and organization for the operations control and incentives to increase the production efficiency. Organization, procedures and politics of purchases, production, finances, sales, personnel, and budget control.

ADMI-4115. ENTREPENEURSHIP. Credits: 2. Lecture hours per week: 2. Prerequisite(s): FINA-4028, MERC-4005. Corequisite(s): None. This course gives emphasis to the initiation and preparation of a business plan to generate financing and start operations. Studies the critical factors related to the conception, initiation, and development of new commercial adventures. The topics covered are to identify the characteristics of prospect businessmen, to innovate, to analyze the marketing potential for new products and services, to acquire an initial capital, to obtain capital for growth of an existing business, and to organize and operate a new business. It will be required that students prepare a business plan for a product or service with export potential.

ADMI-4205. MANAGEMENT AND HUMAN RESOURCES INTERNSHIP. Credits: 3. Lecture hours per week: 0. Prerequisite(s): GEOP-3005, REHU-4405. Corequisite(s): MERC-3115, ESTA-3042. Application of the theoretical knowledge acquired in the Majors of Management and Human Resources to a work situation with a similar environment to that where he/she will perform in the future.

COIN-3405. GLOBAL STRATEGIC MANAGEMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADMI-3205, MERC-4005. Corequisite(s): None. Study of the international commerce environment, strategic management and the international competition, methods to compete internationally, tendencies in global alliances, cultural aspects of International Commerce, cultural communication and intercultural negotiation, human resources administration at an international level and administration in a multicultural environment.

COIN-4105. INTERNATIONAL COMMERCE PROTOCOL. Credits: 2. Lecture hours per week: 2. Prerequisite(s): ADMI-3205. Corequisite(s): None. This course studies the processes of interpersonal interaction at work and in business relations from a global perspective. Also, studies the motivational factors that justify the protocol and etiquette rules appropriate for these commercial interactions and relations at different national cultural scenarios.

COIN-4106. IMPORTS AND EXPORTS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADMI-3205. Corequisite(s): None. Study of how to prepare businesses for international commercial transactions, including operations necessary for importing and exporting goods and services, strategies of marketing and investment, government programs to stimulate exportations and an analysis of trading blocs and their impact in the local economy.

COIN-4205. OPERATIONS MANAGEMENT AND GLOBAL LOGISTICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESTA-3042. Corequisite(s): None. Study of the strategies, planning and administration of the logistics and global operations. Some of the subjects that will be analyzed are, among others, evolution and design of logistics and global operations; marketing strategies, development of suppliers' network; physical distribution; transportation, management of storages and inventory control; risk administration in global operations; evaluation of global logistics and organizational structures that support excellence in global logistics.

COIN-4215. INTERNATIONAL ADMINISTRATION OF HUMAN RESOURCES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Study if human resources management and how is applied in different countries and continents throughout the world. Development of a global view and, at the same time, integral of the modern human resources professional. Special emphasis will be given to diversity and its impact in the globalization process of all components of human resources.

COIN-4225. ELECTRONIC BIBLIOGRAPHICAL RESOURCES. Credits: 1. Lecture hours per week: 1. Prerequisite(s): None. Corequisite(s): None. In the course students get to know and learn to manage technological media to search for information. Then, they integrate critical reading of the obtained information from the media to solve situations presented in areas of business administration. Skills of bibliographical research, use of technology and critical thinking are addressed, while knowledge of topics related to a course in progress is increased.

COIN-4305. METHODS AND TECHNIQUES OF RESEARCH IN BUSINESS ADMINISTRATION. Credits: 2. Lecture hours per week: 2. Prerequisite(s): ESTA-3042. Corequisite(s): None. This course is aimed at training students to be critical consumers of commercial research and to develop basic skills in the methods and techniques of it. Its content covers the problem identification and formulation, methodological designs, and techniques to

collect, analyze, interpret, and present data. Discusses the ethical use of research in business.

COIN-4306. BEHAVIOR IN INTERNATIONAL ORGANIZATIONS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADMI-3205. Corequisite(s): None. This course includes the study of the impact of globalization effects and implications in the human conduct within the organizations. The student will be exposed to those concepts and theories that will allow them to understand organizational behavior from an international perspective and within a global context. The course includes activities such as: analysis and case discussions that promote the students' analytical capacity development.

COIN-4307. LEGAL ASPECTS IN INTERNATIONAL COMMERCE. Credits: 4. Lecture hours per week: 4. Prerequisite(s): ADMI-3205. Corequisite(s): None. This course is a comprehensive study of the international rules and the laws that affect international commerce. Tries to equip the international business manager with an ample knowledge of the main international standards and other sources of laws, rules and practices that affect international sales, United States custom rules, regulations of foreign trade from the country of origin and foreign country, the environment, workforce, and business forms. Addresses the history, development and principles of the trade agreements process and associations, including, but not limited to the following: GATT, WTO, EU and NAFTA. The student will value the necessity to understand the legal and operational rules of business activities.

COIN-4405. STUDY TRIP. Credits: 3. Lecture hours per week: 45. Prerequisite(s): None. Corequisite(s): None. The study travel is the practical and direct experience by which it is valued the culture, geography, economic development, social organization, and idiosyncrasy of the visited countries, in order to integrate that personal assessment on the theoretical studies, as a formative aspect of undeniable usefulness that complements all type of intellectual information. The trip is preceded by a pre-trip workshop offered during all semester, immediately before the trip.

COIN-4406. INTERNATIONAL COMMERCE INTERNSHIP. Credits: 3. Lecture hours per week: 0. Prerequisite(s): ADMI-3205, MERC-4005. Corequisite(s): None. In this course the student is exposed to a learning experience based in the practice of real work as part of the university academic formal education. This supervised work experience will allow the student to apply the acquired knowledge in the area of international commerce and develop new knowledge in a company. With this learning approach it is expected to place the student in a potential position to get a job in international commerce after graduation.

CONT-3005. ELEMENTARY ACCOUNTING I. Credits: 4. Lecture hours per week: 4. Prerequisite(s): None. Corequisite(s): None. The course will familiarize the student with the nature, scope, and objectives of accounting and how it has affected its development by different society sectors. Theory and methodology are studied, emphasizing in the registry of income and expenses transactions and the forms used for presenting the financial information. Students relate with the accounting uses and importance for the owners, managers, lenders and public in general, who have different interests in financial information.

CONT-3006. ELEMENTARY ACCOUNTING II. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-3005. Corequisite(s): None. Study of accounting concepts and principles and their application in the company operations. Discusses the internal control systems, cost allocation and depreciation methods. The student is familiarized with several organizations (corporations, mercantile societies, and own businesses), analyzing the components of capital, characteristics, and differences. The student applies the acquired knowledge in the analysis of financial statements using current and immediate ratios of the solvency indexes.

CONT-3009. PUERTO RICO TAXES. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-3006. Corequisite(s): None. The different types of income taxes, property taxes, excise taxes, heritages, and other types of taxes existing in Puerto Rico, are studied. Taxable income, allowable deductions, flexible depreciation, basis for determining the tax payable, loans, calculations of normal contribution and of additional contribution as they affect individuals, partnerships, and corporations.

CONT-3015. ELEMENTARY ACCOUNTING FOR SECRETARIES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Includes a general study of the double-entry accounting basic elements with application on special journals, major subsidiaries, and other related books. Petty cash system control, preparation and analysis of payrolls and financial statements.

CONT-3115. COMPUTERIZED ACCOUNTING. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-3006, SICI-4105. Corequisite(s): None. Through this course, students will develop the necessary skills to perform the routine accounting procedures on the computer using modules that integrate into the accounting system.

CONT-4006. MANAGERIAL ACCOUNTING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CONT-3005, CONT-3006. Corequisite(s): None. The course emphasizes the need that managers have to know the accounting uses, know the techniques used in it to understand and value this information in decision-making. Relates the student with the basic functions of

management in the areas of planning, organization, direction, supervision, and activity controls of the company.

CONT-4007. FEDERAL INCOME TAXES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CONT-3006. Corequisite(s): None. Analysis of federal income taxes law. Includes inclusions and exclusions to the gross income, allowable deductions, capital assets, withholding tax, credits for taxes paid to foreign countries and determining the contribution to be paid. ***Quality Matters seal.***

CONT-4016. CURRENT DEVELOPMENTS IN ACCOUNTING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CONT-4308. Corequisite(s): None. Discussion and analysis of the postulates, current topics, and important elements in the accounting field. Emphasis is given to the study of the generally accepted accounting principles recently adopted by the profession and to the special funds expressed in recent statements and publications.

CONT-4020. ACCOUNTING FOR NON-PROFIT ORGANIZATIONS. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-4308. Corequisite(s): None. The course will provide a study of the accounting theoretical framework for non-profit entities, including the historical development of the fund accounting system. It will be studied the accounting budgeting process of different types of funds from state and municipal government, hospitals, universities, and other non-profit businesses. In addition, it will briefly discuss the standards and procedures of financial and operational audits from the public sector and from other non-profit entities.

CONT-4045. ADVANCED ACCOUNTING. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-4308. Corequisite(s): None. Study of theories upon which rests the following accounting specialized problems: partnerships, allocations, sale terms, companies with financial problems, successions and trusts, domestic and foreign branches, consolidations and mergers, prices' levels, inventories. Discussion of the principles ruling accounting on institutions and government, including budget, and general and special funds.

CONT-4047. INTRODUCTION TO INTERNATIONAL ACCOUNTING. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-3006. Corequisite(s): None. The course provides fundamental knowledge about the international environment and the context in which accounting is practiced worldwide. Includes a comparison of the accounting principles within the countries, effort for standardizing the generally accepted accounting principles, and discusses world events from an accounting perspective. The course integrates financial, managerial, contributive, and auditing accounting concepts and an analysis of financial statements applicable on transactions of a multinational company.

CONT-4065. COMPUTARIZED BASIC ACCOUNTING FOR ADMINISTRATIVE ASSISTANTS. Credits: 4. Lecture hours per week: 4. Prerequisite(s): ADSO-3065, ADSO-3066. Corequisite(s): None. General study of basic accounting elements and analysis of transactions, preparation of balances, worksheets, closing entries and financial statements using computer systems. Cash control and preparation of bank reconciliations. Payroll accounting, as provided by current laws and regulations.

CONT-4075. THEORY AND PRACTICE OF AUDITING. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-4308. Corequisite(s): None. Studies the accounts' intervention practices and gives emphasis to the accounting systems evaluation and the internal controls on which they are contained. Includes the study of auditing reports, rules, norms and procedures of accounts' intervention, the application of statistical samples and of computers to the intervention processes and management services provided by the C.P.A. to the clients.

CONT-4077. ACCOUNTING SKILLS DEVELOPMENT. Credits: 4. Lecture hours per week: 12. Prerequisite(s): SICI-4105, CONT-4308, CONT-3009, CONT-4325, CONT-4075. Corequisite(s): None. Consists of an experience in a work center during a period of no less than 200 hours, during which students will have the opportunity to develop skills in one or more areas of financial, tax, managerial and/or governmental accounting.

CONT-4115. CORPORATIONS AND PARTNERSHIPS INCOME TAXES. Credits**:** 3. Lecture hours per week: 3. Prerequisite (s): CONT 4007 or CONT 3009. Corequisite (s): None. It studies and analyzes the provisions of existing contributive statutes related to the determination of income taxes of different Corporations and Partnerships, whether federal, state, or municipal. Includes the discussion of contributive aspects related to capital taxes, operational income, allocations, and profits and losses of capital. Also, it studies the most important aspects of corporative reorganizations, tax incentives and contributive aspects related to Non-Profit Corporations.

CONT-4215. PRACTICE RESEARCH IN TAXES. Credits**:** 3. Lecture hours per week: 0. Prerequisite(s): CONT 4007 or CONT 3009. Corequisite(s): None. This course offers the student the alternative of having a practical experience in a work center or to perform research applied to the taxes subject. The work center experience will be for a period of no less than 150 hours. Students who opt for the research must select a subject about current tax situations. This research must be approved and supervised by the professor-coordinator of the course.

CONT-4307. INTERMEDIATE ACCOUNTING I. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-3006.

Corequisite(s): None. Study and analysis of the accounting principles and procedures related with the adjustments and entry, valuation, and presentation of the assets in a financial statement.

CONT-4308. INTERMEDIATE ACCOUNTING II. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-4307. Corequisite(s): None. Continuation of the study and analysis of accounting principles and procedures related with fixed assets, corporate capital, and corrections of previous years. Study of the impact of price level changes on the financial statements.

CONT-4325. COST ACCOUNTING. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-3006. Corequisite(s): None. Study of the cost accounting principles and its role on administrative decisions. Different techniques of counting costs applicable to several forms of production, are studied. Covers budget principles and methods to set the basis on which the cost is determined and analyzes the routine procedures to compile costs information.

DEME-4005. BUSINESS LAW. Credits: 4. Lecture hours per week: 4. Prerequisite(s): None. Corequisite(s): None. Study and analysis of laws, doctrines and jurisprudence that regulates the mercantile transactions in Puerto Rico's society. Integration of these norms as part of the Puerto Rico law system, which includes subjects and doctrines of Common Law and Civil Rights.

ECON-3007. PRINCIPLES OF ECONOMY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Condensed course about fundamentals of economy. Includes, the fundamental microeconomic theory aspects, although it continuously refers to the areas of macroeconomics in order to provide a wider view of the complex economic world that surrounds us. The course includes, in specific way, the following areas: fundaments of economic science, economy systems, functioning of the economy system, national income measure, price and markets, manufacturing companies, supply determinants, theory of the firm, benefit, incomes and costs of production.

ECON-3155. PRINCIPLES OF MICROECONOMICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The course presents the theory and principles of economic activity at a business level. Emphasizes the different market types, presents the supply and demand models and their respective changes, utility concept and marginal utility in the consumer conduct. Presents the concept and model of supply and demand elasticity and emphasizes the cost concept and its different components in the short and long term. ***Quality Matters seal.***

ECON-3165. PRINCIPLES OF MACROECONOMICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ECON-3155. Corequisite(s): None. The course presents concepts of national product, national income, unemployment, and inflation. Presents the classical and Keynesian approaches and aspects of fiscal and monetary politics. Exposes notions of international economy and of economic growth and development. Presents the concepts of aggregated supply and demand.

ECON-4036. ECONOMIC AND SOCIAL DEVELOPMENT OF PUERTO RICO. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ECON-3007. Corequisite(s): None. Analysis of the process of economic and social development of Puerto Rico. Within the development theory, it will be considered the characteristics and tendencies of our economy, economic geography and economic history, political framework, population and workforce, physical resources, technology, transportation and communication, agriculture and industrial sector role, gross product, net income, balance of payments and commercial relations, public politics, public incomes and expenses, banking and credit facilities, and the interrelation of these factors in determining the socio-economic reality of Puerto Rico.

ECON-4085. INTERNATIONAL ECONOMY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADMI-3205, ECON-3165. Corequisite(s): None. Theory and practice of international commerce and capital movements. Includes: historical development, monetary exchange mechanism, problem of the types of change, balance of payments, international monetary problems, economic integration, and international agreements.

ESTA-3041. STATISTICS I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MECU-3031. Corequisite(s): None. This course emphasizes the fundamental aspects of descriptive statistics. It is aimed at those students who are familiarized with aspects of administration. This course intends to introduce the student to the descriptive statistics study, such as: statistical data analysis, dispersion, and variability measures. Also, it briefly discusses the probability theory.

ESTA-3042. STATISTICS II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESTA-3041. Corequisite(s): None. This course introduces statistical inference. Contains, in a specific way, the following areas: sampling distribution (of the mean, of proportions, etc.), parameters estimation, hypothesis test (for the arithmetic mean of population, differences among the means, etc.), non-parametric tests, regression and simple linear correlation, index numbers and chronological series.

FINA-3006. COMMERCIAL FINANCE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CONT-3006, ECON-3007. Corequisite(s): None. The course covers the general principles of financial administration. Includes basically the following subjects: operational and legal context of businesses, financial analysis, financial planning and control techniques, capital budget

administration, capital cost, financial sources and general financial aspects of the organization, expansion, and settlement in a new business.

FINA-3007. MONEY AND BANKING. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-3005, ECON-3007. Corequisite(s): None. The course has as its objective to take the student to the knowledge of the fundamental principles which try to explain the economic activity within the monetary object context, and mainly includes the following subjects: concept, development and importance of monetary object economy, financial institutions and their role in the economic development and growth, structure and behavior of the banking industry, central banking and monetary politics, monetary economic theory and general aspects of the international monetary system.

FINA-4028. INTERNATIONAL FINANCE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FINA-4105. Corequisite(s): None. Familiarize students with the functioning of the balance of payment adjustment, international commerce, international monetary systems, and the funds flow in the world market, both short and long term. It emphasizes the role played by the type of change in the process of the balance of payment adjustment.

FINA-4105. PRINCIPIPLES OF FINANCE. Credits: 4. Lecture hours per week: 4. Prerequisite(s): CONT-3006, ECON-3165. Corequisite(s): None. Study of the process of providing, administering, and distributing funds of a business. Deep study of analysis, planning and control of the financial decisions made in every business and the influence that capital markets have in these decisions.

GEOP-3005. OPERATIONS MANAGEMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESTA-3042. Corequisite(s): None. Modern analytical problems and techniques related with the most economical production of goods and services. Includes: introductory topics on systems design of operations production, planning and control. Provides adequate analytical structure to evaluate problems on all essential phases and principal components. The necessary criteria to evaluate these problems from a managerial point of view and the integration of these in the business general structure with the functions in term of the operations' analysis relevant to the production of goods and services for profit and non-profit businesses.

GEOP-4037. DECISIONAL PROCESS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): GEOP-3005. Corequisite(s): None. Explanation of the principles and models of elementary mathematics for decision-making in modern business. Includes: decision techniques theory, linear programming, and the elements of the economical inventory theory.

GEOP-4317. INDUSTRIAL SECURITY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Industrial planning to prevent accidents in the production, to protect human capital and properties and ensure the normal development of the operations at the most economical cost possible.

GEOP-4318. QUALITY CONTROL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): GEOP-3005, SICI-4105. Corequisite(s): None. Study of the principles, techniques, and international standards for the statistical control of production quality, includes double sampling and sequential planning.

GEOP-4325. PURCHASES AND MATERIALS MANAGEMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): GEOP-3005, SICI-4105. Corequisite(s): None. Introduction to materials control systems used in businesses. Discusses the concepts of production planning and control, materials planning requirements (MPR), *Bill of Materials*, MPA, capacity, etc.

GERE-3675. MANAGERIAL COMMUNICATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADMI-3005. Corequisite(s): None. Study of the human communication process, variables involved in it, sociological and psychological factors that influence and determine their effects in order to give the communicator scientific knowledge and mastering of this process. It emphasizes the value of communication used on administrative matters and communication theory, as well as of the related theoretical fields, the learning theory, group theories, etc. Relation between an effective communication and the administrative success in the business area.

MERC-2005. ART OF SELLING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MERC-3115. Corequisite(s): None. This course is structured so students can learn modern techniques of sales, emphasizing presentation, customer service, closing and function of the sale in the economical process. Also, it is considered fundamental to create in the student a positive attitude towards the sales profession.

MERC-2007. RETAIL STORES MANAGEMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MERC-3115. Corequisite(s): None. Analysis of the fundamental principles and of the practices successfully used in the organization and management of the businesses dedicated to retail commerce. Planning and control of retail merchandise, storage and inventories. Personnel administration and other operational problems.

MERC-3115. MARKETING PRINCIPLES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADMI-3005. Corequisite(s): None. Introduction to the study of the marketing process as a managerial function. Emphasis in the analysis, planning, implementation, organization, and control of marketing programs.

MERC-4005. INTERNATIONAL MARKETING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MERC-3115. Corequisite(s): None. Study of the emerging issues in marketing through the national barriers, as well as the marketing emerging problems within markets from several nations. The situation of domestic exporting companies, as well as those companies that assemble or produce on foreign markets. Study of the necessary functions for the distribution of goods and services, from the exporter to multinational companies.

MERC-4055. ADVERTISING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MERC-3115. Corequisite(s): None. Basic principles of advertising. Advertising history until the present. Ethical, social, and economic problems of commercial advertisement. Development of an ad and the media selection to be used on its production. Role of the advertising agencies and advertising campaigns. Evaluation of the media and advertising strategies.

REHU-3025. INDUSTRIAL SUPERVISION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): REHU-4405. Corequisite(s): None. How to supervise office employees and production workers. The art of communicating with subordinates. How to delegate, establish discipline and maintain labor-management relations. Motivational and leadership techniques and the important role of the supervisor in the organization.

REHU-4005. BUSINESS ETHICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADMI-3005, ECON-3007. Corequisite(s): None. As science, business ethics is the study of the fair distribution of wealth. This involves a specific concept of man. The man is presented through its two affinities, of things and of right solutions. Analyzes economic, political, and moral formulas in order to help resolve problems of wealth. The cooperative system, capitalist with social responsibility and the democrat government as a guardian of equality, dignity and freedom of all citizens.

REHU-4046. INDUSTRIAL PSYCHOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): REHU-4405. Corequisite(s): None. Principles of general psychology as applied to situations and problems that affect management. Discussion of psychological factors that contribute to the efficient functioning of an industrial and commercial organization and assist in developing good human relations and industrial relations, evaluation of aptitudes and intelligence, and other important characteristics of work situations.

REHU-4405. HUMAN RESOURCES MANAGEMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADMI-3005. Corequisite(s): None. Introduction to the different strategies, practices, procedures, and legal aspects related to an effective management of human resources in the organizations. Study of theories, methods and techniques related to the role of human resources management within the economic, domestic, and global context.

REHU-4406. LABOR-MANAGEMENT RELATIONS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): REHU-4405. Corequisite(s): None. Analysis of relations' dynamics among unions and employers of organizations, both in Puerto Rico and United States, from its origins until present. Emphasis in the study of structures of the involved parties in the labor-management relations, as well as strategies used for each side in the compliance of their functions. Introduction to basic processes related to collective negotiation, administration agreements and their relationship with the non-union sector.

REHU-4407. WAGES AND SALARIES ADMINISTRATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): REHU-4405. Corequisite(s): None. Introduction to the design, implementation, and administration of an effective compensational system. Emphasis in the organizational diagnosis in terms of the internal and external influences as a prelude of design and administration of a compensation system.

REHU-4408. ORGANIZATIONAL BEHAVIOR. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADMI-3005, PSIC-3005. Corequisite(s): None Introduction to fundamental concepts, theories and processes related to the study of individuals, groups, and organizations behavior. Focuses on the organization as an open system.

REHU-4410. TRAINING AND DEVELOPMENT OF HUMAN RESOURCES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): REHU-4405. Corequisite(s): None. The course emphasizes the aspect of how to train and plan personnel development within any kind of organization; and the role the human resources manager should adopt in personnel development. Includes the use of different techniques of evaluation, measurement, and training of Human Resources.

REHU-4419. LABOR LAW. Credits: 3. Lecture hours per week: 3. Prerequisite(s): REHU-4405. Corequisite(s): None. Analysis of labor and social legislation (federal and local) and how it affects making business decisions. Study and analysis of the jurisprudence settled by the Supreme Court and the effects on organizations. Emphasizes the importance of labor law, focusing on protective labor law.

SICI-3115. COMPUTATIONAL SKILLS. Credits: 0. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. This course introduces the information systems' impact on our business world, in specific areas like the access to information through the Internet, data processors and the use of the computer as a tool for preparing commercial presentations. It is established the necessity of standardization and uniformity in the communication of data and information in an

organization. Provides practical experiences with data processing systems, access to the Internet and its use, and programs for the presentations development.

SICI-4105. COMPUTER TOOLS IN SYSTEM ADMINISTRATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Examines the applications of the computer to the information necessities in a business, and the available programs for modern microcomputers, from the perspective of an individual user. Although studies the systems development, it is emphasized the use of available commercial programming. However, it is established the necessity of standardization and uniformity in the data organization and communication. The course provides practical experiences with common processing systems of text, graphics, database management, electronic worksheets, project management, accounting, statistics, and others.

SICI-4106. INTRODUCTION TO THE TECHNOLOGY OF ELECTRONIC COMMERCE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): SICI-4105, ADMI-3005. Corequisite(s): MERC-3115. This course will give a general tour of the knowledge developed until now on how to transform a traditional business (without technology presence) into a business with a face and commercial component on the Internet that will allow to inform, communicate and trade using electronic means. This will have a marketing focus, but still examining other administrative aspects of the modern business (strategies, planning, operations, logistics, service, quality, etc.). Strongly emphasizes the design techniques and corresponding computational tools applied to the commercial world that, as of today, make possible the presence and electronic commerce. Students will make multiple uses of examples available in the Internet to be used as models of discussion and design.

FACULTY

COLÓN PARRILLA, SONIA I. *Full Professor,*
PhD, 2008. University of Sevilla, Spain.

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Office Systems Administration

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History and Objectives

The Department of Secretarial Sciences opened its doors to the community in 1967 in what was then known as the Humacao Regional College. In July 1994, the name changed to Department of Systems Administration in order to go hand in hand with the technological changes in business and in the modern office.

Starting on August 2023, the decision to change the course of history in the business field was made with the implementation of an innovative technology, administration and business management program. This program seeks to revolutionize the way office managers operate and develop in today's market, providing updated tools and knowledge to adapt to the constant changes and challenges they face. With a focus on digitalization and efficiency, this new program will mark a before and after in the way in which companies manage their resources and position themselves in the market. Together, we are building a more prosperous and successful future for all organizations that decide to join this new era of business management.

The program provides students with solid training in office management, research in the area of administration, business management strategies, information technology and innovation processes. Students also learn to lead work teams, make strategic decisions, solve problems effectively, and adapt to market changes.

Mission

The mission of the Bachelor in Technology, Administration and Business Management program is to develop competent professionals in the areas of technology, administration and business management with a local and international projection to promote the values of Puerto Rican society.

Vision

The vision of the Bachelor in Technology, Administration and Business Management program is to be precursors in the internationalization of professionals as resources for innovation in business diversity.

Values

As a result of a reflexive process and continuous assessment, the Department of Office Systems Administration of the University of Puerto Rico at Humacao, seeks to promulgate in its program the values of:

- **Excellence**: Excel in academic and professional endeavors with a responsible and ethical attitude that exemplifies tolerance, diversity, equality and a culture of peace.
- **Technological resilience:** Recognize that, faced with the challenge of obsolescence, the responsible and sustainable use of technology is vital for the development of daily activities.
- **Commitment:** Generate synergies and articulate efforts that contribute to the success of meeting the proposed objectives.
- **Citizenship:** Show the behavior of a responsible citizen interested in the institution and community served.
- **Global vision:** Promote supportive coexistence through connections in a world without borders.
- **Adaptation to the environment:** Exhibit a transformative and collaborative attitude to transcend limitations and accept the challenges that society imposes.

Profile

The graduate of the Bachelor of Technology, Administration and Business Management is qualified to work in different areas within the business field, whether in the private or public sector or starting their own business. Some of the competencies and skills that students acquire during their training are:

- Knowledge of technological and digital tools for business management.
- Ability to analyze and solve problems in the business environment.
- Leadership and teamwork skills.
- Ability to communicate effectively both orally and in writing.
- Ability to plan, organize and supervise projects.
- Decision-making skills based on data analysis.
- Knowledge of the legal regulations applicable to the business environment.
- Skills to identify business opportunities and develop strategies to take advantage of them.

In summary, the graduate of the Bachelor of Technology, Administration and Business Management has comprehensive training that allows him/her to execute successfully in the business world, contributing to the development and growth of the organizations in which he/she works. In addition, students will have the necessary foundations to continue their academic

training in university courses related to business administration and management.

Academic Programs

The Department offers the program of **Bachelor in Technology, Administration and Business Management.** This program is an excellent educational option for those interested in the business world and in technology. It offers students comprehensive training in areas such as office management, administration, business management and information technology.

Thanks to the growing digitalization of companies, the demand for professionals with knowledge in technology and business management has increased significantly in recent years. Graduates of this program have excellent employment opportunities in a wide variety of sectors, including consulting, banking, manufacturing and technology companies.

BACHELOR IN TECHNOLOGY, ADMINISTRATION AND BUSINESS MANAGEMENT

(For students admitted from the first semester 2024-2025)

Curricular Sequence

The curricular component of the program is summarized below:

General Education Courses.....39
Program Course.....55
Recommended Elective Courses.....16
Elective Courses.....12
Total.....122

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
CISO3121	Introduction to Social Sciences I	3
TAGE3065	Production of Business Documents I	3
TAGE3066	Laboratory of Production of Business Documents I	0
TAGE3070	Information Technology and Communication in Office Management	3
	Total	15

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
CISO3122	Introduction to Social Sciences II	3
TAGE4155	Ethics and Interpersonal Relations	3
TAGE3068	Production of Business Documents II	3
TAGE3069	Laboratory of Production of Business Documents II	0
TAGE3075	Research Concepts and Proposal Development	3
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESCO3001	Psychology of Written Communication I	3
INCO3005	Business Communication I	3
TAGE3077	Integration of Administrative and Technological Concepts in the Production of Documents	3
TAGE4029	Document and Database Management	3
TAGE3079	Fundamentals of Publications and Digital Procedures	3
	Total	15

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
ESCO3002	Psychology of Written Communication II	3
CONT4065	Computerized Basic Accounting for Administrative Assistants	4
TAGE4037	Technological, Administrative and Business Management Procedures	3
TAGE3080	Business Management in Legal, Medical and Management Areas	3
MATE3001	Elementary Mathematics	3
XXXX	Professional Elective	3
	Total	19

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
TAGE4157	Planning, Design and Organization of Workshops	3
TAGE4057	Integration of Application Programs	3
TAGE4058	Laboratory of Application Program Integration	0
HUMAXXXX	Elective in Humanities	3
ADMI3676	Fundaments of Finance, Economy and Marketing	3
XXXX	Elective in Natural Sciences	3
	Total	15

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
INCO4050	Conversational English for Office Professionals	3
TAGE4210	Management and Supervision of Human Talent	3
ADMI3005	Administrative Theory	3
XXXX	Free Elective I	3
	Total	12

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
ADSO4185	Administrative Support Center	6
HIST3245	History of Puerto Rico Compendium..... ***or***	3
XXXX	Elective in History ***or***	
XXXX	Puerto Rican Literature	
TAGE/ADSO	Professional Elective	3
XXXX	Free Elective II	3
	Total	15

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
TAGE4095	Occupational Experience Seminar	0
TAGE4096	Occupational Experience	4
XXXX	Elective in Social Sciences	3
XXXX	Free Elective III	3
XXXX	Free Elective IV	3
	Total	13

BACHELOR IN OFFICE SYSTEMS ADMINISTRATION

(For students admitted before the first semester 2024-2025)

Curricular Sequence

Summary of credits:

General courses.....45
Program courses.....51
Required electives in related areas.....16
Electives.....12
Total.....124

FIRST YEAR- FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I ***or***	3
UNGL3103	*Intermediate English I*	
CISO3121	Introduction to Social Sciences I	3
ADSO3065	Basic Computer Keyboarding	4
ADSO3066	Basic Computer Keyboarding Laboratory	0
ADSO3067	Telecommunications	2
	Total	15

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II ***or***	3
INGL3104	*Intermediate English II*	
CISO3122	Introduction to Social Sciences II	3
ADSO4155	Human Relations	3
ADSO3068	Introduction to Text Processing	4
ADSO3069	Introduction to Text Processing Laboratory	0
	Total	16

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ESCO3001	Psychology of Written Communication I	3
INCO3005	Business Communication I	3
ADSO3077	Text Processing Production I	3
ADSO4029	Document Administration	3
FILO3005	Introduction to Ethics	3
	Total	15

SECOND YEAR – SECOND SEMEESTER

Code	Course	Crs.
ESCO3002	Psychology of Written Communication II	3
INCO3006	Business Communication II	3
ADSO3078	Text Processing Production II	3
ADSO4166	Electronic Publications	2
MATE3001	Elementary Mathematics	3
XXXX	Professional elective	3
	Total	17

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
ADSO4157	Planning, Design and Organization of Trainings	3
ADSO4037	Office Systems Administration Procedures	3
ADSO4168	Electronic Procedures	2
CONT4065	Computerized Basic Accounting for Administrative Assistants	4
XXXX	Professional elective	3
XXXX	Natura Sciences elective	3
	Total	18

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
INCO4050	Conversational English for Office Professionals	3
	Elective in History of Puerto Rican Literature	3
ADSO4057	Spreadsheets and Database Applications	3
ADSO4058	Spreadsheets and Database Applications Laboratory	0
ADMI3676	Fundaments of Finance, Economy and Marketing	3
XXXX	Natural Sciences elective	3
	Total	15

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
ADSO4210	Office Systems Administration and Supervision	3
XXXX	Professional elective	3
XXXX	Elective in Humanities	3
XXXX	Free elective	3
XXXX	Free elective	3
	Total	15

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
ADSO4095	Occupational Experience Seminar	0
ADSO4096	Occupational Experience	4
XXXX	Elective in Social Sciences	3
XXXX	Free elective	3
XXXX	Free elective	3
	Total	13

COURSE DESCRIPTIONS

All concentration courses in ADSO and TAGE must be approved with a minimum of C, in accordance with Certification No. 2024-2025-31 of the Academic Senate of the University of Puerto Rico at Humacao.

ADSO-3065. BASIC COMPUTER KEYBOARDING. Credits: 4. Lecture hours per week: 4. Prerequisite(s): None. Corequisite(s): ADSO-3066. Teaching, from handling to touch, of the computer keyboard (alphanumeric, symbolic and numbers keypad). Emphasis in the development of speed and accuracy skills. Also, the course provides students the opportunity of learning basic functions of a word processor program. The student learns to use the basic functions to highlight text and get to know the work screen. Special attention will be given to the basic techniques, to the good work habits, and to proofreading and analysis of errors. The course will be offered onsite, hybrid or remotely.

ADSO-3066. BASIC COMPUTER KEYBOARDING LABORATORY. Credits: 0. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): ADSO-3065. This laboratory is a complement of the course Basic Computer Keyboarding. Students will work to improve basic skills of speed and accuracy and to master the basic functions of the text processing program learned in class. Exercises will be provided to strengthen the knowledge acquired in class. The course will be offered onsite, hybrid or remotely.

ADSO-3067. TELECOMMUNICATIONS. Credits: 2. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. Study of the concepts related to the role of the office as a support system for the business and the position occupied by the professional specialized in office systems administration. Introduction of different steps in the information electronic processing, the equipment used in each step and in the different information systems of the electronic office. Training in the functioning and utilities of the Internet and in electronic mail. The course will be offered onsite, hybrid or remotely.

ADSO-3068. INTRODUCTION TO TEXT PROCESSING. Credits: 4. Lecture hours per week: 4. Prerequisite(s): ADSO-3065, ADSO-3066. Corequisite(s): ADSO-3069. This course will continue to develop speed and accuracy skills. Will strengthen the mastering of basic techniques and other acquired knowledge on the course Basic Computer Keyboarding. Will apply the basic functions in the use of an electronic text processing program on the production of simple documents, such as: business letters, memorandum, envelopes, manuscripts, tabulation, and simple tables. Also, emphasis will be given to proofreading, evaluation of produced documents and to the improvement of attitudes. The course will be offered onsite, hybrid or remotely.

ADSO-3069. INTRODUCTION TO TEXT PROCESSING LABORATORY. Credits: 0. Lecture hours per week: 2. Prerequisite(s): ADSO-3065, ADSO-3066. Corequisite(s): ADSO-3068. This laboratory is a complement of the course Introduction to Text Processing I. Students may select exercises as necessary to strengthen their knowledge and achieve a mastering of the functions presented in class. Emphasis will be given to the development of basic skills at superior levels. The course will be offered onsite, hybrid or remotely.

ADSO-3077. TEXT PROCESSING PRODUCTION I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADSO-3068 y ADSO-3069. Corequisite(s): None. Integration of basic techniques, attitudes, work habits and proofreading skills to the execution of intermediate and advanced functions of an electronic text processing program. Emphasis will be given to assigned functions in the production of complex business documents on English and Spanish languages, such as: business letters in different memorandum styles, announcements, reports, tables, business forms, and financial statements. The course will continue developing the skills of speed and accuracy at superior levels. It will provide an open laboratory with additional exercises to reinforce the skills, as needed by students. The course will be offered onsite, hybrid or remotely.

ADSO-3078. TEXT PROCESSING PRODUCTION II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADSO-3077. Corequisite(s): None. Production of complex business documents, both in English and Spanish, using simulations of related tasks. Training and intensive practice will be provided in advanced functions of a text processing program, such as: making complex tables, works in columns, paging styles, macros, etc. Emphasis will be given to techniques of creating and editing, directly on the computer, various documents from different offices in the business, such as: Legal Department, Accounting and Finance Department, and the Department of Human Resources. Additional exercises will be given in an open laboratory to strengthen the knowledge acquired in class. The course will be offered onsite, hybrid or remotely.

ADSO-4029. DOCUMENT ADMINISTRATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course allows students to be aware of the importance of managing documents when controlling information in a modern office. In it, the factors to be considered when implanting a document administration system will be examined from its justification. Emphasis will be given to the necessary techniques in order to measure the effectiveness of all the system programs. It will be analyzed the different classification systems. It will encourage discussions of real situations from their experience related with document administration. At last, students will get familiarized with the technological advances and their

use on document preservation, recovery, and disposal. The course will be offered onsite, hybrid or remotely.

ADSO-4037. OFFICE SYSTEMS ADMINISTRATION PROCEDURES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADSO-3078. Corequisite(s): ADSO-4168. This course is designed to develop students' skills, knowledge, and competencies necessary to perform adequately the duties and responsibilities of an administrative assistant. The course emphasizes the teaching of administrative procedures, such as time management and mail management, trip coordination for the executive, phone call processing, coordination of activities, meetings, etc. Also, the course stimulates critical thinking and decision-making through case studies. The course presents functions of several specializations: medical, legal, banking, educational, governmental, among others. The course will be offered onsite, hybrid or remotely.

ADSO-4057. APPLICATION INTEGRATION ON INFORMATION SYSTENS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADSO-3077. Corequisite(s): ADSO-4058. Training in the functions and utilities of different information processing programs. This course is designed to introduce the concept of an integrated office and the elaboration of different types of reports. Students will use programs of electronic worksheets, database and graphics, calendars, electronic mail, and others. The course will be offered onsite, hybrid or remotely.

ADSO-4058. APPLICATION INTEGRATION ON INFORMATION SYSTENS LABORATORY. Credits: 0. Lecture hours per week: 2. Prerequisite(s): ADSO-3077. Corequisite(s): ADSO-4057. This laboratory is a complement of the course Spreadsheets and Database Applications. Exercises will be provided as additional practice to strengthen the mastering of functions from different information processing programs and their integration. The course will be offered onsite, hybrid or remotely.

ADSO-4095. OCCUPATIONAL EXPERIENCE SEMINAR. Credits: 0. Lecture hours per week: 1. Prerequisite(s): ADSO-4057, ADSO-4058, ADSO-4210, ADSO-4029 and ADSO-4157. Corequisite(s): ADSO-4096. Presentation and discussion of subjects and situations, hypothetical and real, related with the course of Occupational Experience, with the purpose of determining the appropriate conduct on each case. Coordination of activities that help students in their professional development are made. Also, students' doubts of their occupational experience are clarified to help them in the transition period, from student to a professional. The course will be offered onsite, hybrid or remotely.

ADSO-4096. OCCUPATIONAL EXPERIENCE. Credits: 4. Lecture hours per week: 8. Prerequisite(s): ADSO-4057, ADSO-4058, ADSO-4210, ADSO-4029 and ADSO-4157. Corequisite(s): ADSO-4095. All the knowledge, abilities and skills acquired through all the courses are applied to a real office.

ADSO-4155. HUMAN RELATIONS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course is designed to guide students in the analysis and interpretation of human conduct from a personal perspective and based in their experience on a complex society, of constant change and in the work world. Students may clarify their philosophy of life and, therefore, understand and strengthen their relations with others. The course will be offered onsite, hybrid or remotely.

ADSO-4157. PLANNING, DESIGN AND ORGANIZATION OF TRAININGS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Study and application of basic concepts related to planning and organization of training for the office personnel. Emphasis will be given to the techniques for identifying training necessities in the office personnel and to offer workshops to users of electronic equipment. Also, it will be studied the basic concepts for establishing a continuous training plan for the personnel in service. The course will be offered onsite, hybrid or remotely.

ADSO-4166. ELECTRONIC PUBLICATIONS. Credits: 2. Lecture hours per week: 2. Prerequisite(s): ADSO-3077. Corequisite(s): ADSO-3078. Training in the design, elaboration, and production of the office's own publicity documents using information electronic processing programs. Students will design advertising sheets, prepare presentations, flyers, brochures, invitations, graphic designs, presentation cards and letterheads for papers and envelopes, among others. Also, students will become familiar with and use predefined formats in the programs. The course will be offered onsite, hybrid or remotely.

ADSO-4168. ELECTRONIC PROCEDURES. Credits: 2. Lecture hours per week: 2. Prerequisite(s): ADSO-4166. Corequisite(s): ADSO-4037. In this course students get to know different utilities and programs of the computer for the planning of the daily office work. They will perform tasks of planning, such as: updating the electronic appointment calendar, coordinating committee meetings, gathering information from the Internet, maintaining the phone and fax directories, planning of time, and establishing priorities. The course will be offered onsite, hybrid or remotely.

ADSO-4185. ADMINISTRATIVE SUPPORT CENTER. Credits: 6. Conference hours per week: 6. Prerequisite(s): ADSO-4165, ADSO-4175. Corequisite(s): None. This course is a professional elective. By providing administrative support in a real work environment, students will have the opportunity to integrate the acquired skills and knowledge. Also, students will have the opportunity to share ion different phases of legal and

medical administrative work. The course will be offered onsite, hybrid or remotely.

ADSO-4210. OFFICE SYSTEMS ADMINISTRATION AND SUPERVISION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ADSO-4037. Corequisite(s): None. Competencies development in the area of office administration and employee supervision. Application of administration concepts to the establishment, coordination, implementation and evaluation of office systems and procedures. Will evaluate the effective methods to automate the office on new systems, new equipment, new procedures, as well as personnel necessities. The course will be offered onsite, hybrid or remotely.

TAGE-3065. PRODUCTION OF BUSINESS DOCUMENTS I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): TAGE3066. The course will provide techniques for fast typing with accuracy, which will help increase productivity in the creation of business documents. Rules of language, grammar, accentuation, punctuation marks, and others will be applied. The course will emphasize the basic functions of a text processing program and will produce documents that are frequently used in different public and private institutions. Additionally, the student will develop techniques for collating documents and recognize the importance of basic techniques when using the computer during daily work. The course will be organized in three units, composed of theoretical material, application activities, projects and departmental exams. It is designed to be offered in person, hybrid or remote mode. The course must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-3066. LABORATORY OF PRODUCTION OF BUSINESS DOCUMENTS I. Credits: 0. Laboratory hours per week: 2. Prerequisite(s): None. Corequisite(s) TAGE3065. In this laboratory the student will have the opportunity to consolidate the knowledge acquired in the course TAGE3065. Students will review what was learned and do additional work that strengthens the learning. The student will carry out tasks and other learning activities individually and collaboratively under the supervision and support of the teacher. The course will be organized in three units, composed of theoretical material, application activities, projects and departmental exams. It is designed to be offered in person, hybrid or remote mode. The course must be approved with a grade of C or higher according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-3068. PRODUCTION OF BUSINESS DOCUMENTS II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TAGE-3065. Corequisite(s): TAGE-3066. The course will provide the demonstration and creation of relevant documents in business management environments. The functions used in the word processor, from basic to advanced, will allow the student to present report styles that require different standardized formats, such as APA and MLA among others. The course will also provide the teaching and application of tables, from low to high difficulty, statistical documents, calculating and recalculating in a table, performing simple equations within the table, among other functions. The course will be organized in four units, composed of theories, practices and projects. It is designed to be offered in person, hybrid or remote mode. It must be approved with a grade of C or higher, according to Certification number 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-3069. LABORATORY OF PRODUCTION OF BUSINESS DOCUMENTS II. Credits: 0. Laboratory hours per week: 2. Prerequisite(s): TAGE-3065, TAGE-3066. Corequisite(s): TAGE-3068. In this laboratory the student will have the opportunity to consolidate the knowledge acquired in the course ADSO 3068. It will review what was learned and students will do additional work to strengthens the learning. The student may receive individual support from the teacher in assigned tasks. Likewise, there will be space for collaborative learning under the direction and supervision of the teacher. The course will be organized in three units, composed of practices and projects. It is designed to be offered in person, hybrid or remote mode. The course must be approved with a grade of C or higher according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico in Humacao.

TAGE-3070. INFORMATION TECHNOLOGY AND COMMUNICATION IN OFFICE MANAGEMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. In this course, the student will be guided to lead the use of information and communication technologies (TIC) in office management in order to facilitate the efficient execution of activities. The student will learn concepts aimed at understanding the operation of virtual offices, the advantages of using telecommunications in electronic businesses, and telemarketing. In addition, employment opportunities in the field of telecommunications will be identified. Students will be made aware of the use and application of the rules and regulations of the Federal Communications Commission (FCC) in office management. Emphasis will be placed on the application of the knowledge acquired in carrying out exercises. The course will be organized into three units, composed of theory, practices and projects. It is designed to be offered in person, hybrid or remote mode. It must be approved with a grade of C or higher according to Certification number 2014-2015-55 of the Academic Senate of the University of Puerto Rico in Humacao.

TAGE-3075. RESEARCH CONCEPTS AND PROPOSAL DEVELOPMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course allows the student to learn and apply the basic processes of research methodology. It will allow the student to identify problems and to design and implement problem solving strategies. Special emphasis is given in the development of questionnaires and in the process of data analysis and interpretation. Research methods will be presented: quantitative and qualitative, with emphasis in the quantitative method as it is an introductory course. The course will be organized in three units, composed of theoretical material, application activities, projects, and departmental exams. It is design to be offered in person, hybrid or remote mode. Must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-3077. INTEGRATION OF ADMINISTRATIVE AND TECHNOLOGICAL CONCEPTS IN THE PRODUCTION OF DOCUMENTS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TAGE-3068, TAGE-3069. Corequisite(s): None. This course will provide the integration of concepts and technology in business documents. Through simulation modules in a business scenario, the student will be able to integrate and apply advanced functions on each task performed. The module contents include issues of great importance that occur in a real work environment, such as: human resources, accounting, finance, among others. These include handling business correspondence in English and Spanish, correspondence merging, complex tables, complex reports, revision and edition techniques, writing, among others. The modules offer the student the opportunity to express and demonstrate high level of thinking through the decision making and the problem solving. The professor will be a facilitator and guidance for learning and will guarantee a simulation environment in an organization, in which the student perceives the need for high-performance for the business success and management. The course will be organized in three modules, composed of theories, practices, projects, and departmental exams. It is designed to be offered in person, hybrid or remote mode. The course must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-3079. FUNDAMENTALS OF PUBLICATIONS AND DIGITAL PROCEDURES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Current trends are driving towards the use of digital information resources that are flexible, economical, use as little space as possible and facilitate immediate distribution. In this course the student will use different computer programs designed to artistically produce publications (Desktop Publishing), and electronically plan daily work in office management. The basic concepts of graphic design in digital publications will be introduced, and digital procedures in the office will be emphasized to develop organizational techniques and efficient time management. The course will be organized in three units, composed of theories, practices and projects. It is designed to be offered in person, hybrid or remote mode. It must be approved with a grade of C or higher, according to Certification number 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-3080. BUSINESS MANAGEMENT IN LEGAL, MEDICAL AND MANAGEMENT AREAS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The administrative professional works in different scenarios, both in person and remotely. In the daily work, they must know how different documents are processed for compliance with the business or company for which they work. Likewise, they must guide their clients in the processes that result from the granting of an internal or external service of the company. The focus and design of the course in general management includes three areas: administrative, legal and medical. This course offers you general experience in applying for permits, licenses, certifications, among others, from authorized agencies. The most relevant strategies that distinguish it are: the offering of three workshops (at least) with resources identified in the areas and one field experience per area. The main purpose of the course is to streamline processes so that the service of the administrative professional allows the company to save through a dispensable asset, time. The course will be organized in units. The course is designed to be offered in person, hybrid and distance learning. It must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-4029. DOCUMENTS AND DATABASE MANAGEMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): TAGE3077. This course will allow the student to comprehend the management of documents and the handling of information processed in an office. Within the expected framework, the life stages of a document will be presented, printed or in digital media, and will include the process of decision making of the people who are authorized to control the information effectively. The control of information is based on compliance with the regulations that the office structure may apply, and with technology developments that offer alternative means of storing, preserving, retrieving, and disposing of documents. At the end of the course the application to create databases and present reports will be used. The course will be organized in three units, composed of theories, practices and projects. The course is designed to be offered in person, hybrid and in distance learning.

It must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-4037. TECHNOLOGICAL, ADMINISTRATIVE AND BUSINESS MANAGEMENT PROCEDURES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TAGE-4029. Corequisite(s): None. The administrative professional as a manager in a company must have skills, abilities, and professional and technological competencies to compete in different scenarios where the main interest is the requester of a service. This course will allow the student to understand the management of the administrative professional in his/her performance as a representative of the company for which he/she works. The students will see themselves as a support staff in office management, who must show mastery in: communication skills, efficient time management, establishing priorities, preparing complex jobs, procedures for organizing trips, planning and scheduling meetings with a global vision, providing support to colleagues, organizing projects, and unforeseen tasks. In this course the student will be able to discern the integration of technology in each of the jobs carried out by the administrative professional. Within the expected framework, the student will also have the opportunity to develop research work focused on current and future problems related to procedures and management in the business office. In addition, critical thinking and decision making are stimulated through case studies. The course will be organized in units. The course is designed to be offered in person, hybrid and in distance learning. It must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-4057. INTEGRATION OF APPLICATION PROGRAMS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TAGE-3077. Corequisite(s): TAGE-4058. Training in the functions and utilities of electronic spreadsheets programs, electronic spreadsheets graphics, and databases. This course introduces the concept of integrated office using different Microsoft applications. The course will be organized in three units, composed of theorical material, application activities, projects, and departmental exams. It is designed to be offered in person, hybrid and in distance learning. The course must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-4058. LABORATORY OF INTEGRATION OF APPLICATION PROGRAMS. Credits: 0. Laboratory hours per week: 2. Prerequisite(s): ATGE-3077. Corequisite(s): TAGE-4057. This laboratory complements the course of Integration of Application Programs. Additional practice of exercises will be provided to strengthen the mastery of the functions from an electronic spreadsheet, databases, and for the integration of applications. The course will be organized in three units, composed of theorical material, applications activities, projects and departmental exams. It is designed to be offered in person, hybrid and in distance learning. The course must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-4095. OCUPATIONAL EXPERIENCE SEMINAR. Credits: 0. Lecture hours per week: 2. Prerequisite(s): TAGE-4185. Corequisite(s): TAGE-4096. The course is designed to expose students to professional meetings using the agenda, minutes reading and basic parliamentary procedures. This is the forum to clarify doubts related to the students' occupational experience and to determine what is the appropriate conduct in each case. Students will manage documents for recruitment and placement in a practice center, develop reports of work carried out in the practice center, and attendance reports and reviews of professional development activities. In addition, activities focused on summarizing the knowledge acquired on previous courses, will be carried out, such as: community action project, book lecture and analysis, organization of a professional activity, and a professional portfolio.

TAGE-4096. OCCUPATIONAL EXPERIENCE. Credits: 4. Lecture hours per week: 3. Prerequisite(s): TAGE-4185. Corequisite(s): TAGE-4095. The purpose of this course is to provide students the opportunity to apply and integrate all the knowledge, skills, abilities, and attitudes developed during previous courses in a real work environment.

TAGE-4155. ETHICS AND INTERPERSONAL RELATIONS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Interpersonal relations occupy an essential place in society, since people interact daily with others who have different points of view, ideas, goals, and perceptions. In this course, the student will learn, as support for the construction of good interpersonal relations, to identify individual differences, the function of communication, qualities and techniques of leadership, his/her responsibilities regarding the ethical conduct, and the projection of a good professional image in social activities and events that require etiquette and table protocol. The application of the knowledge acquired on different projects and exercises, will be applied. The course will be organized in three units, composed of theorical material, applications activities, projects and departmental exams. It is designed to be offered in person, hybrid and in distance learning. The course must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-4157. PLANNING, DESIGN AND ORGANIZATION OF WORKSHOPS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Study and application of the basic concepts related with planning and organization of workshops for the office personnel. Emphasis will be given to the analysis of techniques to identify workshops needed by the office personnel and to offer workshops to the users of electronic equipment. In addition, basic concepts to establish a continuous training plan for the service personnel. The course will be organized in three units, composed of theorical material, applications activities, projects and departmental exams. It is designed to be offered in person, hybrid and in distance learning. The course must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

TAGE-4185. ADMINISTRATIVE SUPPORT CENTER. Credits: 6. Lecture hours per week: 6. Prerequisite(s): TAGE4037, TAGE4057, TAGE4058, TAGE4029, TAGE4157, TAGE4210. Corequisite(s): None. Through the provision of administrative support in a real work scenario, students will have the opportunity to integrate the skills and knowledge they have acquired. Students will be able to participate in various phases of administrative work. The course will be organized into work areas of project application activities. It is designed to be offered only in an in-person format.

TAGE-4210. MANAGEMENT AND SUPERVISION OF HUMAN TALENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Development of the competencies in the area of office management and employee supervision and evaluation. Application of the management concepts to the establishment, coordination, implantation, and evaluation of the systems and of the office procedures. Presentation of health and security systems in the work area. Application of information systems in the processes for employee supervision and evaluation. The course will be organized in three units, composed of theorical material, applications activities, projects and departmental exams. It is designed to be offered in person, hybrid and in distance learning. The course must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

Professional Electives

ADSO-3009. SPEEDWRITING IN SPANISH. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESPA-3101. Corequisite(s): ADSO-3010 and ESPA-3102. This course is a professional elective. Includes teaching of principles and abbreviations of the speed writing system based on the alphabet and phonetics of the Spanish language. Also, includes reading and writing of abbreviated words, taking dictations at different velocities and the application of orthography, punctuation, and other aspects of the Spanish language to achieve an acceptable hand transcription. The course will be offered onsite, hybrid or remotely.

ADSO-3010. SPEEDWRITING IN NSPANISH LABORATORY. Credits: 0. Lecture hours per week: 1. Prerequisite(s): ESPA-3101. Corequisite(s): ADSO-3009 y ESPA-3102. This Laboratory course will be a complement of the Spanish Speed Writing course. It will provide the student with additional exercises for practice through reading, writing, and taking dictation of material presented in class. Also, the area of grammar in Spanish language will be reinforced to achieve an acceptable transcription. The course will be offered onsite, hybrid or remotely.

ADSO-3060. BASIC COMPUTER SKILLS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Teaching, from handling to touch, of computer alphanumeric and symbols keyboarding. Elements and operations of an information computer system are taught. The essential components of an operative system, types and elements of the windows and dialog frame elements, are presented. Shows the basic functions of different applications of a “suite” to produce personal and business documents. Gives emphasis to the basic techniques for the posture in front of the computer, proofreading of the work and documents review. The course will be offered onsite, hybrid or remotely.

ADSO-4165. MANAGEMENT AND PRODUCTION OF MEDICAL DOCUMENTS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course is a professional elective. The course will develop in the student skills, knowledges and attitudes needed to perform as an administrative assistant at a medical office. Emphasis will be given to the procedures and terminology related to this area. In addition, the critical thinking, decision making, and confidentiality process as an ethical principle, will be encouraged. The course will be offered onsite, hybrid or remotely.

ADSO-4167. ELECTRONIC PRESENTATIONS. Credits: 1. Lecture hours per week: 1. Prerequisite(s): None. Corequisite(s): None. This course is a professional elective that aims to train in a presentations program that will facilitate visual material creation for electronic expositions. It will provide the necessary skills to create, process, and present information using the program tools. The course will be offered onsite, hybrid or remotely.

ADSO-4175. MANAGEMENT AND PRODUCTION OF LEGAL DOCUMENTS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course is a professional elective. It is designed so that the student develops the needed knowledge and competencies to efficiently perform in his/her

responsibilities on a legal environment. Emphasis is given to legal terminology, courts categories, and the jurisdiction of these on different cases. In addition, the critical thinking and decision making are stimulated through the study of different cases. The course will be offered onsite, hybrid or remotely.

ADSO-4176. MEDICAL BILLING. Credits: 2. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. This course is a professional elective. In it, basic concepts of medical plan billing will be presented. In addition, students will be trained in the methodology and techniques of charging medical-hospital services provided to patients who requests them. The student will be able to apply the knowledge acquired in carrying out electronic invoicing exercises using a specialized computer application program. The course will be offered in person, hybrid or remotely.

ADSO-4178. EXPLORING THE INTERNET. Credits: 1. Lecture hours per week: 1. Prerequisite(s): None. Corequisite(s): None. This course is a professional elective. It aims to relate the student to the uses and resources offered by the Internet, how to connect and how to access it. The student will learn to access the World Wide Web to search for information, use the email, identify some programs of application and entertainment, use terminology related to the label of "net citizens". The student will be able to apply the acquired knowledge in carrying out information search exercises and related projects. The course will be offered in person, hybrid or remotely.

TAGE-4899. EDUCATIONAL AND CULTURAL TRIP FOR ADMINISTRATIVE ASSISTANTS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The main purpose of this course is to take a study trip where the participant is exposed to a process of exchange of experiences and opportunities in different cultural scenario, in order to learn aspects related to administration, management, technology, and office procedures in countries of Central America, South America, and the Caribbean. The course will analyze comparative aspects of socioeconomic, cultural, geographic, and commercial aspects that contribute to the development of the international procedures of the administrative assistant profession. It is designed to be offered in person, although Phases I and III could be adjusted to hybrid modality. The course must be approved with a grade of C or higher, according to Certification No. 2014-2015-55 of the Academic Senate of the University of Puerto Rico at Humacao.

FACULTY

GARCÍA CRUZ, IRIS LYNETTE, *Associate Professor*,
EdD, 2016, Inter American University, Puerto Rico.

HUERTAS APONTE, MARIBEL, *Full Professor,*
EdD, 2003, Inter American University, Puerto Rico

REYES GARCÍA, IVELISSE. *Associate Professor*,
MA, 1995, Inter American University, Puerto Rico.

VÁZQUEZ GUILFÚ, ANA M. *Full Professor,*
EdD, 2013, Inter American University, Puerto Rico.

HEALTH SCIENCES

Nursing

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History and Objectives

The Department of Nursing was founded in 1967 with the establishment of the second program in Puerto Rico of Associate Degree (the first was in the UPR –Mayagüez Campus). On 1971 received the full accreditation of the *National League for Nursing Accrediting Commission (NLNAC) and* has been uninterruptedly accredited for 43 years. Because of the new tendencies on the recruitment of nursing personnel in PR, the Associate Degree Program terminated in the UPRH by 2014, with the distinction of being accredited.

In 1976, the Puerto Rico Higher Education Council approved the proposal to offer the Bachelor Program on Sciences of Nursing. The curriculum was designed using the theoretician model of Callista Roy, becoming the first program in Puerto Rico to apply a unique model on nursing and the second to apply the Adaptation Model of Callista Roy on the American Nation. The Bachelor Program in Sciences of Nursing of the University of Puerto Rico at Humacao obtained its initial accreditation in 1992 by the *National League for Nursing Accrediting Commission (*former *Accreditation Commission for Education in Nursing),* 3343 Peachtree Road NE, Suite 850, Atlanta, Georgia 30326, Tel. 1-404-975-5000, http://www.acenursing.org. This distinction has been uninterruptedly maintained in every cycle of reaccreditation during the past 26 years. Our next reaccreditation will be in Autumn 2019.

In four years, the Bachelor Program in Nursing prepares professionals in general nursing, with the knowledge needed to provide direct care to individuals, family, and community on different health scenarios. The curriculum is based in the Adaptation Model of Callista Roy. Through it, students acquire knowledge in biological, psychological, social, humanistic, and nursing sciences that capacitate them to provide safe and effective direct care to individuals, families, and communities in a variety of health care scenarios. The graduate gets prepared with the essential elements of nursing education in the XXI century, complying with the competencies needed to carry out professional interventions using skills of leadership, critical thinking, communication competencies, client-centered care ethical-legal aspects, based on the nursing practice standards and practice based on evidence.

The Program's graduates are eligible to take the licensing test in order to execute as a Generalist Nursing in Puerto Rico. The generalist nurse is the person responsible of planning, execute, delegate, and evaluate the actions in the nursing practice. Works in coordination with the interdisciplinary team. Directs and supervises the care offered by associates and practice nurses. Also, can work independently and offer services by contracts with agencies and individuals.

Student Outcomes:

1. Perform professional practice to promote biopsychosocial health, reduce risks, and manage adaptation problems by providing quality care that respects the preferences and cultural diversity of the client (individual, family, group, and community) within an ethical, legal, and moral framework, consistent with professional standards, the code of ethics, and national safety goals.
2. Incorporate critical thinking in decision-making and problem-solving to ensure quality care based on scientific knowledge and evidence-based practice.
3. Use effective oral, written, and technological communication with the nursing and interprofessional team, individuals, families, groups, and communities to mitigate errors and support decision-making.
4. Incorporate scientific evidence and consider the preferences and values of the individual, family, and community to guide decision-making, and promote safe, high-quality, and cost-effective care.
5. Demonstrate leadership and care management competencies in collaboration with the interprofessional team and community leaders.

Academic Programs

The Department offers a study program leading to the following academic degree: **Bachelor of Science with a Major in Nursing.**

BACHELOR OF SCIENCES IN NURSING

The Program prepares the future general nurses with the knowledge, skills and attitudes needed for professional nursing practice in a variety of structured and non-structured scenarios. The curricular sequence includes courses in general education, basic sciences, and nursing. Also, includes the necessary bio-psychosocial areas as reference for the decision-making process to design and carry out the client centered care of nursing, safely and effectively. The curriculum is organized with four academic levels, comprised in 131 credits, distributed as follows:

Curricular Sequence

Summary of credits:

General education courses……..63
Core course……..56
Free electives……..12
Total……131

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
CISO3121	Introduction to Social Sciences I	3
BIOL1011	Human Anatomy and Physiology I	4
BIOL1012	Laboratory of Human Anatomy and Physiology I	0
BIOL2001	Elemental Microbiology	4
BIOL2002	Laboratory of Elemental Microbiology	0
MATE3071	College Algebra	4
	Total	18

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
CISO3122	Introduction to Social Sciences II	3
BIOL1013	Human Anatomy and Physiology II	4
BIOL1014	Laboratory of Human Anatomy and Physiology II	0
ENFE3111	Introduction to Nursing Sciences	4
ENFE3112	Laboratory of Introduction to Nursing Sciences	2
	Total	16

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3101	Basic English I	3
HUMA3021	Cultural Manifestations of Western Man I	3
QUIM3161	Inorganic and Organic Chemistry	4
QUIM3013	Laboratory of General and Organic Chemistry, Biology and Biochemistry I	0
ENFE4035	Adaptation of the Human Being in His/Her Life Cycle	4
ENFE4036	Laboratory of Adaptation of the Human Being in His/Her Life Cycle	4
	Total	18

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
INGL3102	Basic English II	3
HUMA3022	Cultural Manifestations of Western Man II	3
QUIM3162	Organic Chemistry II and Biochemistry	4
QUIM3014	Laboratory of Organic Chemistry II and Biochemistry	0
ENFE4091	Physical Alterations in the Human Being's Adaptive Process	3
ENFE4092	Laboratory of Physical Alterations in the Human Being's Adaptive Process	2
PSIC3005	General Psychology	3
	Total	18

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
ESTA3041	Statistics I	3
ENFE4096	Psychopathological Alterations in the Human Being's Adaptive Process	2
ENFE4097	Laboratory of Psychopathological Alterations in the Human Being's Adaptive Process	2
ENFE4081	Nursing Intervention in Adults with Adaptation Problems	4
ENFE4082	Laboratory of Nursing Intervention in Adults with Adaptation Problems	4
XXXX	Elective	3
	Total	18

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
SOCI3245	Principles of Sociology	3
ENFE4145	Nursing Process in the Adaptation of the Pregnant Woman and the Child	4
ENFE4146	Laboratory of Nursing Process in the Adaptation of the Pregnant Woman and the Child	4
ENFE4139	Nursing Research	2
ENFE4140	Laboratory of Nursing Research	1
XXXX	Elective	3
	Total	17

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
ENFE4196	Nursing Process in the Adaptation of Families and Groups in the Community	3
ENFE4197	Laboratory of Nursing Process in the Adaptation of Families and Groups in the Community	3
HIST3241	History of Puerto Rico I	3
XXXX	Elective	3
	Total	12

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
ENFE4296	Adaptation to the Professional Role	2
ENFE4297	Laboratory of Adaptation to the Professional Role	5
ENFE4295	Nursing Seminar in Adaptation	1
HIST3242	History of Puerto Rico II	3
XXXX	Elective	3
	Total	14

From the curriculum's third level, students can select twelve elective credits to enrich their personal and professional growth and development. Some of these are offered as an alternative in the e-learning or hybrid modality*. Among the elective courses offered by the Nursing Department are:

Código	Curso	Crs.
ENFE4111	Estimado de Salud del Cliente	2
ENFE4112	Laboratorio Estimado de Salud del Cliente	1
ENFE4186*	Tendencias en Gerontología y Geriatría	3
ENFE4505*	Farmacología Aplicada a la Enfermería	3

COURSE DESCRIPTIONS

ENFE-3111. INTRODUCTION TO NURSING SCIENCES. Credits: 4. Lecture hours per week: 4. Prerequisite(s): BIOL-1011, BIOL-1012, MATE-3071, BIOL-2001, BIOL-2002. Corequisite(s): ENFE-3112, BIOL-1013, BIOL-1014. This course studies the historical evolution and the nursing science nature. Students get to know concepts related to the health-illness continuum and the human being's holistic nature. Some theories related to nursing sciences are discussed, with emphasis in Sister Callista Roy's Adaptation Model. Describes the roles that the nursing professional can perform in the nursing practice. Laws and rules that govern the profession in Puerto Rico, are discussed. The student is introduced in the nursing process to use it as a theoretical framework for the nursing practice and as an essential tool for the promotion, maintenance, and restoration of the individual's adaptation level.

ENFE-3112. LABORATORY OF INTRODUCTION TO NURSING SCIENCES. Credits: 2. Lecture hours per week: 6. Prerequisite(s): BIOL-1011, BIOL-1012, BIOL-2001, BIOL-2002, MATE-3071. Corequisite(s): ENFE-3111, BIOL-1013, BIOL-1014. In this laboratory, students learn the concepts related to the human being in adaptation, their environment, health, and nursing, to construct a self-conceptualization of the profession. Students can introduce themselves in the development of communication skills and inter-professional relations. Examines the ethical-legal responsibility, the moral and standards of the practice in Puerto Rico inherent to the nursing profession. Students get introduced in the application of the nursing process, based on the Sister Callista Roy's Adaptation Model, as an instrument to encourage the individual's healthy adaptation by promotion and prevention. Students are familiarized in the identification of common databases to understand the practice concept based on evidence. The laboratory experiences are made through classroom simulated situations.

ENFE-4035. ADAPTATION OF THE HUMAN BEING IN HIS/HER LIFE CYCLE. Credits: 4. Lecture hours per week: 4. Prerequisite(s): ENFE-3111, ENFE-3112, BIOL-1013, BIOL-2001, MATE-3071. Corequisite(s): ENFE-4036, QUIM-3161, QUIM-3013. This course discusses aspects of health promotion and maintenance. It emphasizes the responsibility of nursing in the role of promotion and maintenance of the human being's adaptation to different growth and development stages. Death process is studied as a normal process within the cycle of life. Different assessment methods are discussed for collecting data of clients. Students are introduced in the study of nursing basic skills as an integral part of care. Nursing interventions are studied for promotion and maintenance of adaptation responses in the human being's physiological and psychosocial aspects.

ENFE-4036. LABORATORY OF ADAPTATION OF THE HUMAN BEING IN HIS/HER LIFE CYCLE. Credits: 4. Lecture hours per week: 12. Prerequisite(s): ENFE-3111, ENFE-3112, BIOL-1013, BIOL-2001. Corequisite(s): QUIM-3161, ENFE-4035. In this course, students use the nursing process to promote human beings' adaptation on different growth and development stages and consider cultural diversity. Students are introduced in the development of the nursing basic skills, such as: vital signs measures, administration of medications, hygiene, laboratory samples, among others. These skills are necessary for promoting and maintaining adaptive answers in the human being. Introduces the use of nursing records and physical assessment as systematic methods for the clients' health data collection on different ages and in the use of the adaptation model. The student can participate in community institutions carrying out activities aimed at the promotion and maintenance of health, such as: family medicine program, hospital external clinics, schools, clinical laboratories, and centers for the elderly.

ENFE-4081. NURSING INTERVENTION IN ADULTS WITH ADAPTATION PROBLEMS. Credits: 4. Lecture hours per week: 4. Prerequisite(s): ENFE-4091, ENFE-4092, QUIM-3162, QUIM3014. Corequisite(s): ESTA-3041, ENFE-4082. This course studies nursing therapeutic interventions aimed at solving problems of adult adaptation. Emphasizes the physiological mode components (fluid and electrolyte balance, oxygenation, nutrition, disposal, activity and rest, senses, neurological and endocrine function, and protection) and how other modes (role, interdependency, and auto-concept) are affected during the hospitalized adult illness. Adaptation problems are studied related with the aging process, the nurse role, and cultural and global aspects. Also, it is discussed

within an ethical-legal framework, therapeutic interventions with the adult client during the operative process. In this course, the student recognizes the necessity of using the nursing process to analyze, diagnose adaptation problems, make decisions, plan, and execute the best practices to guarantee safe and effective care.

ENFE-4082. LABORATORY OF NURSING INTERVENTION IN ADULTS WITH ADAPTATION PROBLEMS. Credits: 4. Lecture hours per week: 12. Prerequisite(s): QUIM-3162, QUIM3014, ENFE-4091, ENFE-4092. Corequisite(s): ENFE-4081, ESTA-3041. This laboratory provides students the opportunity to intervene with hospitalized adult clients with adaptation problems. Students learn to master assessment skills of clients' ineffective conducts. Students integrate the knowledge of bio-psychosocial sciences and use the nursing process as a tool to promote adaptation. The course emphasizes the use of critical thinking and the integration of practice based on evidence to execute nursing skills required to solve adaptation problems related to balance of fluids and electrolytes, oxygenation, nutrition, activity and rest, senses, neurological function, endocrine function and protection. Also, applies the ethical-legal aspects on nursing interventions with the surgical clients or with alterations of physiological mode. The laboratory experiences are made in the simulation laboratory and in the hospital.

ENFE-4091. PHYSIOLOGICAL ALTERATIONS IN THE HUMAN BEING'S ADAPTIVE PROCESS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ENFE-4035, ENFE-4036, QUIM-3161, QUIM3013, MATE-3071, BIOL-2001. Corequisite(s): ENFE-4092, QUIM3161, QUIM-3014. In this course, the student analyzes the most common health deviations which occur in the human organism. The student is guided to understand the biological changes occurring in the organism in such deviations. The knowledge in natural sciences is applied to analyze physiological alterations on different systems of the body, the etiology (stimuli) and the modalities of treatment used in the most common health conditions.

ENFE-4092. LABORATORY OF PHISIOLOGICAL ALTERATIONS IN THE HUMAN BEING'S ADAPTIVE PROCESS. Credits: 2. Lecture hours per week: 6. Prerequisite(s): ENFE-4035, ENFE-4036, QUIM-3161, QUIM3013, MATE-3071. Corequisite(s): ENFE-4091. This course offers the student the opportunity to apply strategies of the health-illness continuum. Through the application of assessment strategies, the student analyses clinical manifestations (ineffective behaviors), diagnose studies and medical treatment of the client presenting health deviations. Laboratory experiences are performed in simulated scenarios and in secondary and third level health care institutions. The knowledge acquired in the course is applied to future nursing therapeutic interventions.

ENFE-4096. PSYCHOPATHOLOGICAL ALTERATIONS IN THE HUMAN BEING'S ADAPTIVE PROCESS. Credits: 2. Lecture hours per week: 2. Prerequisite(s): ENFE-4091, ENFE-4092, PSIC-3005. Corequisite(s): ENFE-4097, ESTA-3041. In this course, the student analyzes the environmental stressors, which provokes psychopathological alterations in the adaptive process of the human being. Bio-psychosocial sciences knowledge is applied when considering physiological and psychosocial aspects that produce alterations in the adaptation level of the client and family. Analyzes ethical-legal, economic, and political issues that influence the care of clients with psychopathologic alterations. Applies concepts of the practice based on evidence to analyze different treatment modalities used in the client with psychopathological alterations according with the clinical scenario. Also, nursing therapeutic interventions are discussed taking into consideration the cultural diversity.

ENFE-4097. LABORATORY OF PSYCHOPATHOLOGICAL ALTERATIONS IN THE HUMAN BEING'S ADAPTIVE PROCESS. Credits: 2. Lecture hours per week: 6. Prerequisite(s): PSIC-3005, ENFE-4091 and ENFE-4092. Corequisite(s): ENFE-4096. Provides the student with the opportunity to consider and intervene with patients on different attention levels in the areas of Mental Health and Psychiatric. Through the interactions, the student will analyze different manifestations of ineffective conduct presented by clients in the psychological modes considering the stressors of the environment. The student will be able to recognize adaptation problems presented by the clients and plan appropriate nursing actions for intervening with ineffective conducts. The student will be able to participate in different therapeutic modalities used on mental health and psychiatric jointly with the mental health care inter-professional team.

ENFE-4111. CLIENT HEALTH ASSESSMENT. Credits: 2. Lecture hours per week: 2. Prerequisite(s): BIOL-1013, BIOL-1014. Corequisite(s): None. This course integrates theoretical knowledge and interpersonal skills to perform the client's physical assessment, focusing on findings' discernment of the client's adaptive and ineffective conducts. Emphasizes in the use of competencies of problem-solving, critical thinking, and recognition of global multidimensional cultural diversity through the human being's life cycle. The physical assessment course provides the student with a systematic method for collecting data using the nursing process. The student develops the skill to perform a physical exam and a psychosocial assessment on the client using as reference the Sister Callista Roy's Adaptation Model.

ENFE-4112. LABORATORY OF CLIENT HEALTH ASSESSMENT. Credits: 1. Lecture hours per week: 3. Prerequisite(s): BIOL-1013. Corequisite(s): None. This course emphasizes skills in the physical, psycho-social,

cultural, and spiritual assessment of the client and family as well as the factors that influence behaviors through the health-illness continuum. The student uses the nursing process to assess the client through the techniques of inspection, palpation, percussion, and auscultation. The course provides guides on specific physical assessment techniques and the student develops the skill and discerns among the normal findings through the life cycle and the pathophysiological processes. Several experiences are provided, and the students use advanced technologies and laboratory skills to develop the necessary abilities to perform the systematic physical exam. These experiences give the opportunity to integrate the necessary knowledge and skills to develop the record and carry out the physical test, psychosocial assessment, and perform the finding's documentation. The necessary resources are provided for students to collect client's data and show a complete physical exam on different structured and non-structured scenarios.

ENFE-4139. NURSING RESEARCH. Credits: 2. Lecture hours per week: 2. Prerequisite(s): ESTA-3041, ENFE-4081, ENFE-4082, ENFE-4096, ENFE-4097. Corequisite(s): ENFE-4140, ENFE-4145, ENFE-4146. In this course, students examine the methods, phases, and techniques of the scientific research process. Emphasizes in managing informatics and technology for searching research studies, on ethical-legal aspects and on the application of the findings to the best nursing practice. The course allows students to visualize the process of research as a tool for nursing practice based on evidence and as part of its continuing professional growth.

ENFE-4140. LABORATORY OF NURSING RESEARCH. Credits: 1. Lecture hours per week: 3. Prerequisite(s): ESTA-3041, ENFE-408l, ENFE-4082. Corequisite(s): ENFE-4139, ENFE-4145, ENFE-4146. This course allows students to get involved with the research process methods and techniques. It emphasizes the identification and formulation of research problems and the promotion to use technology in the search for literature and in the research application on nursing practice. Promotes search and review of literature and the critical analysis of nursing clinical research. Allows students to learn the value of the importance of research for a practice based on evidence and as an important component of the profession.

ENFE-4145. NURSING PROCESS IN THE ADAPTATION OF THE PREGNANT WOMAN AND THE CHILD. Credits: 4. Lecture hours per week: 4. Prerequisite(s): ENFE-4081, ENFE-4082, ENFE-4096, ENFE-4097, ESTA-3041. Corequisite(s): ENFE-4146, ENFE-4139, ENFE-4140, SOCI-3245. This course studies the adaptation problems of pregnant women and child within the familiar context. Analyzes the adaptation problems during pre-natal, labor, and post-partum stages. Studies the integration of the newborn in the family, as well as adaptation problems of the child and adolescent and their responses to hospitalization. Leads the student to analyze mother's responses on the four adaptive modes during maternal cycle. The student analyzes the child and adolescent's responses to illness. This analysis is based on bio-psychosocial, humanistic, and nursing knowledge.

ENFE-4146. LABORATORY OF NURSING PROCESS IN THE ADAPTATION OF THE PREGNANT WOMAN AND THE CHILD. Credits: 4. Lecture hours per week: 12. Prerequisite(s): ENFE-4081, ENFE-4082, ENFE-4096, ENFE-4097. Corequisite(s): SOCI-3245, ENFE-4145, ENFE-4139, ENFE-4140. This course studies nursing interventions with the pregnant woman and the child within the familiar context. Analyzes adaptation problems during the pre-natal, labor, and post-partum periods. Studies the integration of the newborn in the family, as well as adaptation problems of the child and adolescent and their responses to hospitalization. Leads the student to analyze mother's responses on the four adaptive modes during maternal cycle and analyzes the child and adolescent's responses to illness. This analysis is based on bio-psychosocial, humanistic, and nursing knowledge.

ENFE-4186. TRENDS IN GERONTOLOGY AND GERIATRICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ENFE-4139, ENFE-4140, ENFE-4081, ENFE-4082. Corequisite(s): None. The course provides students the opportunity to analyze selected subjects related to the best nursing practice with elderly clients. Students deepen in the knowledge of the aging process in the four adaptive modes through the discussion of the following subjects: selected theories of the old age, local and federal legislations aimed at this population, findings of recent researches in geriatrics and gerontology areas, and the role of complementary and alternative medicine on the elderly's health.

ENFE-4196. NURSING PROCESS IN THE ADAPTATION OF FAMILIES AND GROUPS IN THE COMMUNITY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ENFE-4139, ENFE-4140, ENFE-4145, ENFE-4146, SOCI-3245. Corequisite(s): ENFE-4197. In this course, students deepen on the nursing principles and perspectives of the community. Studies the basic concepts of epidemiology emphasizing the importance of these on the nursing practice for the health of the community. Analyzes the different types of assessments to be made within the community in order to identify necessities of groups, aggregates, and vulnerable populations at risk within the community. The course gives emphasis to the promotion and maintenance of individuals, families and groups adaptation in the community considering the different factors that influence the adaptation level. The study of the individual, the family, and the group in the community is made using the nursing process as presented by Callista Roy. The student is guided to visualize the family as a unit in the community and the

individual as a member of the family group. The learning activities emphasize critical thinking to the attention of families and groups in order to identify and select available resources in the community that help to stimulate adaptation.

ENFE-4197. LABORATORY OF NURSING PROCESS IN THE ADAPTATION OF FAMILIES AND GROUPS IN THE COMMUNITY. Credits: 3. Lecture hours per week: 9. Prerequisite(s): ENFE-4139, ENFE-4140, ENFE-4145, ENFE-4146, SOCI-3245. Corequisite(s): ENFE-4196. This course emphasizes and deepens the roles and functions performed by the nurse on different scenarios within the community. The student will visit several community scenarios like: schools, work scenarios, home health programs, jails, programs for teenage mothers and pregnant women, among others, with the purpose of knowing the roles and responsibilities of the community nurse on each scenario. An assessment is made of a selected community. The community's profile is developed, and the nursing process continues to be applied with the community. The student discusses the different governmental and non-governmental agencies that serve as support to individuals, families, and groups of the community. The student works with leaders and with interdisciplinary personnel to promote and maintain adaptation of individuals, families, and groups of the community.

ENFE-4295. NURSING SEMINAR IN ADAPTATION. Credits: 1. Lecture hours per week: 1. Prerequisite(s): ENFE-4196, ENFE-4197. Corequisite(s): ENFE-4296, ENFE-4297. This course examines legal aspects related to the nursing profession. Also, examines controversies and tendencies of impact for education and practice of the nursing profession. Similarly, discusses the importance of professional organizations for practice and nursing education. Prepares students for the transition towards the job market.

ENFE-4296. ADAPTATION TO THE PROFESSIONAL ROLE. Credits: 2. Lecture hours per week: 2. Prerequisite(s): ENFE-4196, ENFE-4197. Corequisite(s): ENFE-4297, ENFE-4295. This course emphasizes the role of nursing as a leader of care. The student studies and examines theories of leadership, administration, planned change, and decision-making as essential tools of leadership in nursing. Also, it is studied the practice based on evidence, continuous improvement of quality, and legal and regulatory aspects of practice as essential part of the role as a generalist nurse.

ENFE-4297. LABORATORY OF ADAPTATION TO THE PROFESSIONAL ROLE. Credits: 5. Lecture hours per week: 15. Prerequisite(s): ENFE-4196, ENFE-4197. Corequisite(s): ENFE-4296, ENFE-4295. In this course the student develops to a maximum the adaptation level for the execution of his/her role as a generalist nurse in the clinical scenario. Trains the student to apply leadership, administration, and decision-making concepts in the care of groups of clients. The student applies principles of research, problem-solving method, and planned change to a nursing situation affecting adaptation of groups of clients on the assigned scenario. Also, participates in epidemiology activities in the clinical scenario.

ENFE-4505. PHARMACOLOGY APPLIED TO NURSING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ENFE-4035, ENFE-4036, ENFE-4091, ENFE-4092, MATE-3071, QUIM-3162, QUIM-3161. Corequisite(s): None. This course will offer the student a comprehensive and deep knowledge in aspects related to clinical pharmacology. Will provide the essential tools to perform with accuracy, precision, and great judgement drug administration task. Discusses aspects related to pharmacology science and its different branches, such as pharmacokinetic, pharmacodynamics, pharmacognosy, pharmacotherapy, and toxicology of the different drugs. Also, includes ethical-legal and moral aspects related to drug therapy. Will emphasize on the different classifications of drugs, how these acts on the different body systems, and the interaction and compatibility of the drugs on patients with complex clinical conditions.

FACULTY

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Physical Therapy

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Mission

The mission of the Associate Degree in Physical Therapy is to prepare Physical Therapist Assistants who possess clinical skills, so that they can perform functions competently in light of the challenges offered by the health services system.

Using a comprehensive curriculum, different clinical experiences, and the modeling of the academic and clinical faculty professionals, the program capacitate students to obtain and maintain the highest credentials that will allow to practice in Puerto Rico and internationally, in an ethical, legal, and safe way.

The program stimulates students to apply professional values and practice standards in a way that they can see the human being as a whole and demonstrate sensibility to the needs and cultural diversity of the patients/clients, their work team, and the community.

Promote leadership and learning through life with different educational activities, using the curriculum, clinical practices and the participation of different students and professional organizations.

Vision

- Prepare Physical Therapist Assistants with a high level of academic excellence. Have a competent faculty, highly prepared in their clinical respective areas with the necessary skills to provide all those educational experiences required to achieve excellence.
- Have a forefront curriculum, which integrates theoretical and practical knowledge related to technological advances.
- Achieve effectiveness on clinical practices as a mechanism of integration of the acquired knowledge and skills. That students exercise, in their clinical practices, the intervention procedures on physical therapy with a high level of ability and mastering of skills.
- Have the administrative support to obtain the necessary resources to achieve the mission and the established goals.
- Manage new situations using effective communication, critical judgment and a spirit of innovation and creativity.
- That the student, once graduated from the Program, when performing as a Physiotherapy Assistant, will demonstrate to have the necessary abilities conforming to his/her professional competencies. That will fulfill his/her role and accept full responsibility, maintaining the highest practice standards of physical therapy. That will show loyalty and interest in the growth and development of physiotherapy.
- That the Physiotherapy Assistant will apply the care plan to the patient/client considering particular necessities.
- That the Physiotherapist Assistant will possess a holistic view of the human being, showing sensibility for the suffering and for moral and professional values which will allow to work, respecting the dignity of the person being intervene.

Philosophy

Provide our students with the opportunity to develop knowledge and the most advanced clinical skills to they can become competent physical therapy service providers in Puerto Rico and internationally.

Give our students a formation on which it is emphasize the development of sensibility towards the human being as an integral entity, with physical, emotional, social and economic needs; using their own knowledge and where it is stimulated the maximum use of their personal and professional capacities, that recognize their role as agents of change in the health field in tune with social, economic, political and cultural reality and in accordance with the lifestyle of Puerto Ricans and of other cultures.

It is our firm conviction that, once our educational mission is accomplished, we will have significantly contributed to incapacity prevention and to maintenance, improvement, and rehabilitation of our people's health.

Goals

1. Prepare physical therapy assistants with the most advanced knowledge, skills, and activities in the field of physical therapy.
2. Prepare physical therapy assistants compromised to provide physical therapy services of the highest quality, in an ethical, legal, and safe way.
3. Develop in the student the interest in learning over the course of life.
4. Maintain the program accreditation status, guaranteed by the institutional accreditations.
5. Maintain the academic and clinical faculty up to date with contemporary practices.

Objectives

1. Promote the Associate Degree Program in Physical Therapy (GATF, by its Spanish acronym) to draw the suitable candidates.
2. Admit those students that comply with the requisites established by the Program.
3. Have an actualized curriculum, as established by accreditation agencies of the UPRH and of the Program.
4. Develop in students the most advanced knowledge, skills, and attitudes on physical therapy to perform as Physiotherapy Assistants.
5. Maintain students oriented on the Program components, available services in the Program and in the UPRH.
6. That students complete the requisites for the Associate Degree in Physical Therapy at the time stipulated.
7. Maintain student's retention index on a 90-95%.
8. Develop on students of the Program the General Education competencies, as approved by the Academic Senate.
9. Prepare students to, once graduated from the GATF, approve the bar examination offered by the Physical Therapy Examining Board of Puerto Rico.
10. When completing the degree, execute his/her role as an ATF on different scenarios of clinical practice in an ethical, legal and safe way.
11. Execute as an ATF following the applicable local and federal regulations.
12. Execute as an ATF following the profession practice standards related to cultural diversity, showing understanding and sensibility to it.
13. Promote participation of the Program's graduates on educational activities organized by the Program's Continuing Education Coordinator
14. Promote participation of students and graduates on different student and professional organizations.
15. Maintain an academic faculty with updated competencies.
16. Maintain a clinical faculty updated in the knowledge, skills and attitudes that enable them to exercise their job as clinical instructors.
17. Have the necessary equipment and materials for the core courses.
18. Comply with the Program's accreditation standards and with other requisites of the Accreditation Agency.

Physical Therapy Graduate's Profile

1. Will obtain and maintain the professional credentials that authorize him/her to perform as a Physical Therapist Assistant or Physiotherapist (ATF, for its Spanish acronym).
2. Will work under the direction and supervision of a physical therapist (TF, for its Spanish acronym) or physiotherapist.
3. Will carry out data collection related to tests and measures, and will apply those interventions, inherent to his/her competencies, as selected by the physiotherapist.
4. Will carry out his/her role as ATF in an ethical, legal and safe manner, showing effectiveness and assertiveness in his/her performance and maintaining the practice high standards of the physiotherapy profession.
5. Will execute following the standards established on the profession's code of ethics ("American Physical Therapy Association, APTA", Physiotherapy Puerto Rico Association), including his/her ability to clarify the professional values and differentiate them from the personal and social values.
6. Will show a conduct that reflects his/her commitment with the expectations of the members of the physical therapy profession and with those who benefit from his/her services as a Physiotherapy Assistant.
7. Will understand the care plan content, as designed by the physiotherapist, to achieve the short- and long-term goals and the expected results.
8. Will use a verbal and non-verbal communication that will be assertive, effective, appropriate, and proficient with the patient/client, the physiotherapist, other members of the health team, and with the community in general.
9. Will read and interpret professional literature related to physical therapy and with health in general, as an important element in stimulating his/her learning throughout life.
10. Will document in a precise, clear, and concise way and on time, on the clinical record and on other documents related to physical therapy services provision, following the guides and formats required by law regulations and practice scenarios.
11. Will participate in the process of writing discharges and follow-up plans to patients/clients, as specified by the physiotherapist.
12. Will participate in activities aimed at the quality control of physical therapy services and of health in general.
13. Will demonstrate comprehension and sensibility to factors that intervene in the effectiveness of the physical therapy services offered to patients/clients, consumers and to the community in general. These factors include social, cultural, ethical, legal and economic aspects, among others.
14. Will apply skills of independent, critical, and reflexive thinking when solving problems, dealing with emergency situations, and in the planning and organization of the physical therapy services.
15. Will work as an integrated member of the health team, on which he/she will instruct and educate other members of the team, patients/clients, consumers, and the community in general, using

those techniques, programs, materials, and activities distinctive of the audience's learning characteristics and styles, under the leadership and supervision of a Physical Therapist or Physiotherapist.

16. Will educate others about the Physical Therapist or Physiotherapist Assistant role, including the ATF role on the ATF student's clinical learning.
17. Will show skills in leadership and social awareness, supporting and participating in organizations related to the discipline and in other organizations of community service.
18. Will show commitment to fulfill the necessities of the patients/clients, consumers and of the community, of the physical therapy services.

Academic Program

The Program of **Associate Degree in Physical Therapy** is an academic program of the health sciences area that prepares students to work as physical therapist assistants (ATF).

Through a comprehensive curriculum, which includes three clinical practices, the Program provides the theoretical knowledge and the necessary clinical skills to prepare a competent professional. The Program prepares students to obtain and maintain the professional credentials through the bar examination and the continuing education, in accordance with Puerto Rico and federal regulations, so they can practice as physical therapist assistants in Puerto Rico and around the world. The Program contributes to the development of the ATF, who provides physical therapy services, supervised by a physical therapist (TF). The ATF assists the TF with the data collection, implements selected interventions within the health plan, established by the physical therapist, participates in the discharge planning and documents the services provided, shows sensibility to the individual differences and to cultural diversity, is sensitive to physical, emotional and social needs of the patients/clients that receive physical therapy services, recognizes the scope of his/her competencies, makes decisions and collaborates on the solution of problems using critical thinking.

The Program promotes learning, during life, through several educational activities in order to prepare future profession leaders committed with the physical therapy practice standards, including their social responsibility. The graduate provides physical therapy services on different work scenarios, such as hospitals, rehabilitation centers, sports medicine, private offices, and home health center services, among others. Several professional organizations and the physical therapy students' association promote membership and the student's active participation.

ASSOCIATE DEGREE IN PHYSICAL THERAPY

Curricular Sequence

Summary of credits:

General Education courses.....32
Core courses.....38
Total.....70

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
TEFI1005	Introduction to Physical Therapy	3
TEFI1006	Physical Agents and Electrotherapy	4
TEFI1007	Laboratory of Physical Agents and Electrotherapy	0
TEFI1028	Basic Intervention Procedures in Physiotherapy	2
BIOL1011	Human Anatomy and Physiology I	4
BIOL1012	Laboratory of Human Anatomy and Physiology I	0
CISO3121	Introduction to Social Sciences I	3
	Total	16

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
TEFI1008	Therapeutic Massage	2
TEFI1009	Laboratory of Therapeutic Massage	0
TEFI1015	Introduction to Clinical Practice	1
TEFI1025	Functional Anatomy	3
TEFI1026	Laboratory of Functional Anatomy	0
BIOL1013	Human Anatomy and Physiology II	4
BIOL1014	Laboratory of Human Anatomy and Physiology II	0
CISO3122	Introduction to Social Sciences II	3
MATE3001	Elementary Mathematics	3
	Total	16

SUMMER

Code	Course	Crs.
TEFI2011	Clinical Experience I	2
	Total	2

SECOND YEAR- FIRST SEMESTER

Code	Course	Crs.
TEFI2015	Therapeutic Exercises	4
TEFI2018	Laboratory of Therapeutic Exercises	0
TEFI1027	Introduction to Physical Dysfunction	4
PSIC3005	General Psychology	3
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
	Total	17

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
TEFI2007	Functional Activities	4
TEFI2008	Laboratory of Functional Activities	0
TEFI2009	Physical Therapy Application to Physical Dysfunction	4
TEFI2019	Laboratory of Physical Therapy Application to Physical Dysfunction	0
TEFI2010	Psychosocial Aspects of Clinical Practice in Physical Therapy	3
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
	Total	17

SUMMER

Code	Course	Crs.
TEFI2012	Clinical Experience II	2
	Total	2

** The minimum grade for passing the core courses of the program is C (Academic Senate Certification 2002-2003-79).

COURSE DESCRIPTIONS

TEFI-1005. INTRODUCTION TO PHYSICAL THERAPY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): TEFI-1006, TEFI-1028. In this course students will relate with different physical therapy subjects, such as: the physical therapy definition as established by the American Physical Therapy Association, its historical development, philosophy, scope, and its contribution to the health field. Also, studies the legal dispositions and the physical therapy profession practice standards. Students will comprehend the physical therapy personnel competences, the professional conduct and ethical behavior, professional organizations of physical therapy, as well as the communication basic principles, the interpersonal relations, and the collaborative and teamwork. Includes the basic principles for organization and administration of a physical therapy department, and about the organization of the Puerto Rico's Health System, among others, as well as the available resources in the community. The student will be familiarized with different aspects of the documentation concerning physical therapy services, considering the medical-legal aspects, the patient/client's condition and the documents used for billing and payments for services on different work scenarios. He/She will apply the Physical Therapy Documentation Guide., as established by the American Association of Physical Therapy. The student will recognize his/her role as a physical therapist assistant who works under the supervision and guidance of the physical therapist.

TEFI-1006. PHYSICAL AGENTS AND ELECTROTHERAPY. Credits: 4. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): TEFI-1005, TEFI-1007, TEFI-1028, BIOL-1011. The course includes conferences, demonstrations and practice of the different physical agents and procedures of electrotherapy. Gives emphasis on the knowledge and skills development in the application of different physical agents and electrotherapy as part of the procedures on physical therapy intervention. The use of water, radiant energy, electrical power, cold, heat, and ultrasound as therapeutic tools are discussed, demonstrated, and practiced.

TEFI-1007. LABORATORY OF PHYSICAL AGENTS AND ELECTROTHERAPY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): TEFI-1006. This laboratory includes the development of the skills from the course TEFI-1006.

TEFI-1008. THERAPEUTIC MASSAGE. Credits: 2. Lecture hours per week: 1. Prerequisite(s): TEFI-1005, BIOL-1011. Corequisite(s): TEFI-1009, TEFI-1025, BIOL-1013. The course includes conferences, demonstrations, and practices of different therapeutic massage techniques, arch of passive movement, and facial exercises. Gives emphasis on the knowledge of the effects, indications, counter-indications, and precautions of the therapeutic massage. The historical evolution of clinical massage is also studied. Develop kills in the application of different therapeutic massage techniques used for the back, extremities, and face for the most common clinical conditions treated in physical therapy.

TEFI-1009. LABORATORY OF THERAPEUTIC MASSAGE. Credits: 0. Lecture hours per week: 2. Prerequisite(s): BIOL-1011. Corequisite(s): TEFI-1008. This laboratory includes the development of the skills from the course TEFI-1008.

TEFI-1015. INTRODUCTION TO CLINICAL PRACTICE. Credits: 1. Practice hours per semester: 120. Prerequisite(s): TEFI-1005, TEFI-1006, TEFI-1028, BIOL-1011. Corequisite(s): None. This is the first supervised clinical experience on which the student will assist, during the semester, to a duly accredited institution that provides physical therapy services. The student will observe the application of different physical therapy procedures on patients/clients. Will also observe the roles and functions of the health-care team members, the organization, and the functioning of the physical therapy department, in particular the tasks of the physical therapist and physical therapy assistant, and the clinical center in general. After the observation and orientation period, the student will be able to demonstrate, through his/her execution, the knowledge and skills learned in class. These includes: competencies, roles, and functions of the physical therapist assistant, ethical behavior standards, professional values, the interaction with the physical therapist and other health-care service providers, communication principles, and documentation. Using the standard precautions and an

appropriate body mechanics, the student will apply the physical therapy intervention procedures learned: physical agents and electrotherapy, therapy of compression and wound healing, as well as some skills of data collection, such as sensation, vital signs, pain valuation, and others.

TEFI-1025. FUNCTIONAL ANATOMY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-1011. Corequisite(s): TEFI-1026, TEFI-1008, BIOL-1013. The course includes conferences, demonstrations, and practice of movements of the human body joints, identification and palpation of bone prints and body lumps. Covers the history, study methods and the application of kinesiology. Includes the study of the skeletal system, anatomy and muscle physiology, principles of body mechanics, brachial and lumbosacral plexus, the structure and functions of human body joints, structure and physiology of the muscle, its location, proximal and distal joints, nerve supply, functions, muscular and posture tone, and muscular contraction.

TEFI-1026. LABORATORY OF FUNCTIONAL ANATOMY. Credits: 0. Laboratory hours per week: 1. Prerequisite(s): BIOL-1011. Corequisite(s): TEFI-1025. This laboratory includes the development of the skills studied on the course TEFI-1025.

TEFI-1027. INTRODUCTION TO PHYSICAL DYSFUNCTION. Credits: 4. Lecture hours per week: 4. Prerequisite(s): BIOL-1013, TEFI-1025. Corequisite(s): None. The course includes the study of general concepts of health and illness, processes of cell/tissue repair, defense mechanisms of the body, and exams and diagnosis procedures. Includes the discussion of human growth and development with emphasis on the tasks, characteristics, associated risks, and prevention mechanisms through the stages of the human life's cycle. Includes conferences, and discussion about the definition, etiology, pathogenesis, principal clinical manifestations, general principles of treatment, complications and problems associated to human being diseases in the following systems: nervous, cardiovascular, musculoskeletal, endocrine, and respiratory, and sexually transmitted diseases. Also includes a revision of structure and general function of the systems and medical terminology related to those diseases/disorders/conditions studied in class.

TEFI-1028. BASIC INTERVENTION PROCEDURES IN PHYSIOTHERAPY. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): TEFI-1005, TEFI-1006, BIOL-1011. This is a course of laboratory theory and practice that teaches the basic intervention procedures in Physical therapy used in the clinical scenario to promote and restore health and well-being of the patient/client. The techniques for infections control and procedures for wounds healing, and treatment of ulcers are taught, as well as limb and head bandage application and the application of external compression equipment. Includes the study of medical terminology and the development of skills for measuring and documenting the vital signs of the patient/client. Also, the development of skills for preparing the treatment area, positioning and movement of bed patients/clients applying the basic principles of adequate body mechanics, safety, and guarding measures. Principles of first aids are taught, including obtaining the certification for the use of cardiopulmonary resuscitation techniques. The skills included in this course are obtained through conferences, demonstrations, laboratory practices and field trips.

TEFI-2007. FUNCTIONAL ACTIVITIES. Credits: 4. Lecture hours per week: 3. Prerequisite(s): TEFI-2015, TEFI-1027. Corequisite(s): TEFI-2008. The course includes the study of several daily functional activities through conferences, discussions, field trips, demonstrations, and the practice of each activity. Also studies the normal pattern of ambulation and its deviations. Includes the study of the components, the application and setting of assistive equipment and the training in the use of wheelchairs, walkers, crutches, walking sticks, orthoses, and prostheses, among others. The course integrates activities practice in the movement in bed and different techniques of transfers. Practice of several guarding techniques, safety measures, adequate body mechanics, and instructional methods to carry out functional activities considering indications and precautions for the application. The course also integrates demonstration and practice of the exercises used to increase balance, coordination, and muscular strength, focusing on the muscular groups required to execute functional activities, according to the patient/client's condition. Through the study of the regulations established by the ADA Law and other regulations, the physical environment accessibility is assessed.

TEFI-2008. LABORATORY OF FUNCTIONAL ACTIVITIES. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): TEFI-2015, TEFI-1027. Corequisite(s): TEFI-2007. This laboratory includes the development of the skills learned in the curse TEFI-2007.

TEFI-2009. PHYSICAL THERAPY APPLICATION TO PHYSICAL DYSFUNTION. Credits: 4. Lecture hours per week: 3. Prerequisite(s): TEFI-1027, TEFI-2015. Corequisite(s): TEFI-2019, TEFI-2007. Conferences, demonstrations, laboratory practices, and field trips to several physical therapy clinical centers to observe physical therapy interventions with patients/clients who have different medical conditions, especially those related with the nervous, cardiovascular, respiratory, and musculoskeletal systems. The students learn the basic elements of sensory-motor development and the deviations of it.

TEFI-2010. PSYCHOSOCIAL ASPECTS OF CLINICAL PRACTICE IN PHYSICAL THERAPY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CISO-3121, CISO-3122, PSIC-3005, TEFI-1015. Corequisite(s): None. The course is aimed at the study of the most relevant psychosocial aspects which are part of the interaction process between the physical therapist, the physical therapist assistant and the patients/clients who use the physical therapy services, as well as to the team work on the clinical scenarios, family, and community in general. The health concept is discussed as established by the World Health Organization (WHO). The dimensions included in this definition are discussed: physical, mental, and social, virtues and limitations. Also includes the spiritual dimension as part of the health integral concept. Analyzes mental health and the mental conditions considering the development process of the human being's personality. Includes those development theories that have emphasis in the physical therapy clinical practice. The social and cultural factors are included as important elements in the interpretation/meaning of mental health/disease, as well as the most appropriate intervention methods with patients/clients that have symptoms and whose physical problems alter their emotional state. Includes the general description of those major and minor development disorders, as established by the DSM-V, pertinent to the physical therapy practice, emphasizing on the most observed in physical therapy. The knowledge learned throughout the course is applied in the analysis of those typical conditions on physical therapy scenarios. The physical therapist assistant's role is analyzed in his/her intervention with patients/clients, family, work team, and with the community.

TEFI-2011. CLINICAL EXPERIENCE I. Credits: 2. Practice hours per summer: 200. Prerequisite(s): TEFI-1008, TEFI-1015, TEFI-1025, BIOL-1013. Corequisite(s): None. This is a supervised clinical experience on which the student will assist a duly accredited institution that provides physical therapy services. The student will observe the application of different physical therapy intervention processes and patients'/clients' data collection. The student also will observe the roles and functions of members of the health care team, in addition to the organization and functioning of the physical therapy department and of the clinical center. After this observation and orientation period, the student will be able to apply physical agents, electrotherapy, therapy of compression, wound healing treatment, therapeutic massage, and documentation. He/She will collect data, such as pain valuation, vital signs, and sensation. Through these actions, the student will demonstrate knowledge and skills in human anatomy and physiology and in functional anatomy.

TEFI-2012. CLINICAL EXPERIENCE II. Credits: 2. Practice hours per summer: 200. Prerequisite(s): TEFI-2011, TEFI-2009, TEFI-2010, TEFI-2007. Corequisites(s): None. This is a supervised clinical experience on which the student will assist daily to a duly accredited institution that provides general or specialized services on physical therapy, such as: geriatrics, pediatrics, or rehabilitation, among others. The student will apply the procedures of intervention and data collection learned in the curriculum of the associate degree in physical therapy. After the orientation and observation procedures, the student will apply physical agents and electrotherapy, therapy of compression and mechanics, therapeutic massage, therapeutic exercises, functional activities, as learned in the curriculum. The student will collect data of vital signs, assess the arch of movement, test manual muscular strength, among others. Through these actions, the student will demonstrate knowledge and skills in human anatomy and physiology, functional anatomy, documentation, planning and organization, ethical, legal, and safe practice, professional values, effective communication and interpersonal relations, teamwork-health care, implementation of selected components of the care plan, and data collection as established by the physical therapist. Also, the student will demonstrate understanding of the patient/client as an integral human being.

TEFI-2015. THERAPEUTIC EXERCISES. Credits: 4. Lecture hours per week: 3. Prerequisite(s): TEFI-1025, TEFI-1008, TEFI-1015, BIOL-1013, TEFI-2011. Corequisite(s): TEFI-2018. The course includes conferences, demonstrations and practices concerning exercise as therapeutic method. Includes basic assessments of tests and measures that the physical therapist assistant can perform to collect data of the arch of movement, muscular movement, anthropometric measures, posture alignment, and the exercise load that a patient/client can carry out in a resistive exercise program. Several types of therapeutic exercises are taught, as well as their effects, indications, counter-indications, precautions, and the use of some specialized equipment in their application. Discusses the role of the physical therapist assistant in the assessment and implementation of the selected exercise program, design by the physical therapist. Includes several hypothetical situations to stimulate the student's critical thinking, skills of problem solving and data collection.

TEFI-2018. LABORATORY OF THERAPEUTIC EXERCISES. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): TEFI-1025, TEFI-1008, TEFI-1015, TEFI-2011, BIOL-1013. Corequisite(s): TEFI-2015. This laboratory includes the development of the skills learned in the course TEFI-2015.

TEFI-2019. LABORATORY OF PHYSICAL THERAPY APPLICATION TO PHYSICAL DYSFUNCTION. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): TEFI-2015, TEFI-1027. Corequisite(s): TEFI-2007, TEFI-2009. This

laboratory includes the development of skills learned in the course TEFI-2009.

FACULTY

CARTAGENA APONTE, MOISÉS. *Full Professor,*
BSPT, 1997, University of Puerto Rico, Puerto Rico;
MPT, 2001, Loma Linda University, United States.
DPT, 2009, Des Moines University, United States.

COTTO RIVERA, CARMEN ELISA. *Full Professor,*
BSPT, 1982, University of Puerto Rico, Puerto Rico;
MPH, 1991, University of Puerto Rico, Puerto Rico;
EdD, 2016, Turabo University, Puerto Rico.

MARTINEZ OTERO, RAMÓN L. *Assistant Professor,*
PTA, 1998, University of Puerto Rico, Puerto Rico;
BSPT, 2002, University of Puerto Rico, Puerto Rico;
DPT, 2006, Boston University, United States.

SILVA COLLAZO, ENEIDA. *Full Professor*,
BSPT, 1978, University of Puerto Rico, Puerto Rico;
MPH, 1988, University of Puerto Rico, Puerto Rico;
DPT, 2015, University of Montana, United States.

FELICIANO GUTIÉRREZ, DÁMARIS*, Associate Professor*
BSAT, 2003, Universidad de Puerto Rico, Ponce;
MPT, 2014, Universidad de Puerto Rico, Rio Piedras;
DPT, 2019, Universidad de Puerto Rico, Medical Science Campus.

NOTE: The Program also has an AdHonorem clinical faculty that will supervise students during their clinical practices.

Occupational Therapy

Website: http://www.upr.edu/humacao/depto-teoc/
e-mail: teoc.uprh@upr.edu
Phone: 787-850-9392

Occupational Therapy is a health profession that is part of an multi and interdisciplinary team, whose principal function is to contribute on the individual's physical, mental, and social rehabilitation. The Occupational Therapy professional provides services to those individuals affected when performing their occupation (daily life activities) and in their life roles because of a physical dysfunction or injury, problems on the development process or in the aging process or suffering psychological or social problems.

The Associate Degree Program in Occupational Therapy of the University of Puerto Rico at Humacao, through a continuous assessment and programmatic evaluation, offers a study program aligned with the latest educational trends, accreditation standards, and the delivery of Occupational Therapy services in Puerto Rico. It is a program that reaffirms human, social, spiritual, and ethical values of the Occupational Therapy profession.

Mission

The Occupational Therapy Program of the UPRH is centered on student success, preparing committed and qualified healthcare professionals dedicated to community service and well-being of the Puerto Rican society. It promotes academic excellence and holistic evaluation based on evidence and ethical principles that support occupation as a means to achieve health and social well-being. Through innovative methodologies and emerging technologies, and with a commitment to diversity, equity, and inclusion, the program contributes to the healthcare and wellness system of the eastern region, Puerto Rico, and the Caribbean.

Vision

The Occupational Therapy Program aspires to be a leading academic program in the education of competent occupational therapy professionals who contribute to the advancement of the profession, becoming agents of health and well-being transformation. Giving respect to diversity, the program aims to impact non-traditional populations through the integration of innovative educational modalities at both local and international levels.

Basic Competencies of the Occupational Therapy Assistant

Students who obtain an Associate Degree in Occupational Therapy will be able to:

1. Demonstrate clinical, critical, and creative skills in the Occupational Therapy process.
2. Participate in the administration of screenings/evaluations, specifics of the Occupational Therapy rendering of services.
3. Collaborate in the design and implementation of an intervention plan focused on the client and on the occupation.
4. Promote the commitment to the profession to facilitate engagement in different contexts and environments.
5. Perform decision-making based on evidence and with relevant information for the Occupational Therapy intervention.
6. Analyze, grade, and adapt occupations/activities to facilitate the client's performance.
7. Use security/precaution measures in the Occupational Therapy practice.
8. Collaborate in the design, implementation, and development of the Occupational Therapy services in different contexts and populations.
9. Offer education and consultancy in Occupational Therapy to service consumers, their families, the intervention group members and to organizations.
10. Recognize the necessity of continuous learning and professional growth to obtain knowledge and skills.
11. Develop documentation skills that comply with the reimbursement requirements.
12. Develop basic computer literacy skills and apply the technology to the Occupational Therapy process.
13. Demonstrate written, verbal, and non-verbal communication skills.
14. Apply supervising and management skills to improve efficiency and efficacy on the Occupational Therapy services.
15. Comply with ethics, values, and attitudes of the Occupational Therapy profession.
16. Recognize the necessity to collaborate, cooperate and work under the supervision of a registered and licensed Occupational Therapist.
17. Properly work in traditional and non-traditional environments.
18. Value diversity and multicultural aspects.
19. Comply with regulations and requirements of the Occupational Therapy professional license.
20. Demonstrate commitment with health/wellbeing promotion in the Occupational Therapy intervention.
21. Participate in professional organizations and in voluntary/community activities to serve and promote the Occupational Therapy profession.
22. Be an advocate of the Occupational Therapy profession and the consumers.

Admission requirements

1. Request and take the Academic Aptitude Test (College Board).
2. Have an admission index according to the year requested.
3. Have approved a minimum of 24 credits with an index not less than 2.50 (this only applies to reclassification and transfer students).
4. Transfer students must have 24 credits approved with a general index of 3.00.
5. Students applying for admission to the program must request an interview with the Academic Advisor.
6. Students applying for admission to the program must present evidence of having completed six (6) hours of observation of occupational therapy services in a clinical setting.

Graduation requirements

1. The student must be officially enrolled in the Associate Degree Program of Occupational Therapy.
2. Have a minimum grade point average of 2.00.
3. Have approved with no less than a C all the core courses.
4. Be debt-free with the Institution.
5. Fill the graduation request form at the Registrar's Office by the deadline and pay the fee for diploma concepts.
6. The Program's Faculty and the Deanship of Academic Affairs recommend conferring the degree.
7. The student will have a 24-month period (including the two summers) to complete the Level II clinical practice, once completed the curriculum courses of the Associate Degree Program in Occupational Therapy.

Academic Program

The Department offers study programs leading to the following academic degree: **Associate Degree in Occupational Therapy.**

ASSOCIATE DEGREE IN OCCUPATIONAL THERAPY

The University of Puerto Rico at Humacao offers a two-year study program, including the two summer sessions, leading to an Associate Degree in Occupational Therapy (OT). This prepares the graduate to perform as an Occupational Therapy Assistant in: hospitals, rehabilitation centers, home health agencies, mental health centers, drug addiction centers, alcoholism programs, elderly centers, schools, private offices, and other health services in the community.

The Occupational Therapy Assistant works under the supervision of a licensed Occupational Therapist. His/her principal function is to implement the intervention plan designed according to the necessities of the client/patient.

The graduates can take the bar examination administered by the Occupational Therapy Examining Board of Puerto Rico (OTEBPR). Once the student approves the test, obtains a license as an Occupational Therapy Assistant. If the student has been convicted of a felony, his/her eligibility to take the bar examination of the OTEBPR could be affected. Therefore, the issuing of his/her professional license will be subject to the decision of this organism.

The clinical practices are carried out on different community and rehabilitation centers, hospitals, schools, and correctional systems across the Island. It will be required that students complete their clinical practices in accordance with the proposed curriculum. To carry out this practice experiences, the student must comply with the requirements established by the Puerto Rico Health Department. For this reason, it is demanded to have the chickenpox vaccine, the first two-doses of Hepatitis-B vaccine, and the COVID-19 vaccine when enrolling.

Curricular Sequence

Summary of credits:

General Education courses.....29
Core courses.....45
Total.....74

FIRST YEAR- FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
BIOL1011	Human Anatomy and Physiology I	4
BIOL1012	Laboratory of Human Anatomy and Physiology I	0
TEOC1017	Introduction to University Life in Occupational Therapy	2
TEOC1005	Theoretical and Administrative Fundaments in Occupational Therapy	3
TEOC1041	Occupational Therapy in Mental Health I: Introduction	3
TEOC1121	Therapeutic Means I	3
	Total	18

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
BIOL1013	Human Anatomy and Physiology II	4
BIOL1014	Laboratory of Human Anatomy and Physiology II	0
MATE1005	Elementary Technical Mathematics	3
	o	
MATE3001	*Elementary Mathematics*	
TEOC1042	Occupational Therapy in Mental Health II: Application	3
TEOC2101	Physical Health I: Kinesiology Applied to Occupational Therapy	3
TEOC1105	Introduction to Practice Experience in Occupational Therapy (Level I)	2
	Total	18

SUMMER

Code	Course	Crs.
TEOC1109	Practice Experience on Mental Health	2
	Total	2

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3101	Basic English I	3
HUMA3021	Cultural Manifestations of Western Man I ***or***	3
CISO3121	*Introduction to Social Sciences I*	
TEOC2106	Occupational Therapy Service in the Community	3
TEOC2102	Physical Health II: Health Concepts in Occupational Therapy	4
TEOC1122	Therapeutic Means II	2
TEOC2111	Occupational Therapy Intervention in Pediatrics I	3
	Total	18

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
INGL3102	Basic English II	3
HUMA3022	Cultural Manifestations of Western Man II ***or***	3
CISO3122	*Introduction to Social Sciences II*	3
TEOC2103	Physical Health III: Occupational Therapy Intervention in Physical Health	3
TEOC2115	Integration Seminar in Occupational Therapy	2
TEOC2116	Application of Assistive Technology in Occupational Therapy	2
	Total	16

SUMMER

Code	Course	Crs.
TEOC2109	Clinical Practice Experience on Physical Health or Pediatrics	2
	Total	2

The clinical practices will be completed as established in the academic program.

COURSE DESCRIPTIONS

TEOC-1005. THEORETICAL AND ADMINISTRATIVE FUNDAMENTS IN OCCUPATIONAL THERAPY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course includes the definition, historical and philosophical development, scope, and contribution of Occupational Therapy to the health field. Also includes local regulations of the Occupational Therapy practice and the health reform. The functions of the Occupational Therapy personnel, professional code of ethics, organization and administration principles applied in Occupational Therapy, documentation, and professional organizations are presented and discussed. Includes general information of the modalities in the intervention process used in Occupational Therapy, as the Occupational Therapy Framework: Dominium and Process.

TEOC-1017. INTRODUCTION TO UNIVERSITY LIFE IN OCCUPATIONAL THERAPY. Credits: 2. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. The course of *Introduction to University Life in Occupational Therapy* is based on community learning concepts. Integrates courses such as: Theoretical and Administrative Fundaments in Occupational Therapy, Mental Health, and Integration to University Life Workshops, with the purpose of developing essential skills for a successful university life and to be future professionals in the Occupational Therapy field. Among the subjects related to the profession, are included: Occupational Therapy Framework: Dominium and Process, analysis of activity and medical terminology. Covers topics of university life integration as available services in the Institution and in the Occupational Therapy Department, general concepts about computer literacy, search of information, teamwork, and oral and written reports presentation, among others.

TEOC-1041. OCCUPATIONAL THERAPY IN MENTAL HEALTH I: INTRODUCTION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The course of *Occupational Therapy in Mental Health I: Introduction* is one of introductory characters where the student will be exposed to the history and development of the Mental Health area, and as Occupational Therapy, contributes to that evolution. Also, students are exposed to the theoretical and conceptual frameworks that justify the services provision of Occupational Therapy in Mental Health. The individual's normal and dysfunctional mental health development is studied from the social, cultural, economic, familiar, environmental perspective, and other perspectives related. Aspects of health promotion and mental disorders prevention are discussed in the health-care continuum point of view.

TEOC-1042. OCCUPATIONAL THERAPY IN MENTAL HEALTH II: APPLICATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TEOC-1041. Corequisite(s): None. The course of *Occupational Therapy in Mental Health II: Application* studies and practices all aspects concerning the Occupational Therapy intervention processes in Mental Health. It emphasizes the importance of communication, therapeutic relations, and the handling of groups with mental disorders in Occupational Therapy. Also, discusses aspects of pharmacotherapy and the use of alternative/complementary medication methods in Occupational Therapy. Critical/clinical thinking skills are stimulated through exploration, conceptualization, and application of activities (model ECA, by its Spanish acronym) with the purpose of easing therapeutic process practice exposed in the course.

TEOC-1105. INTRODUCTION TO PRACTICE EXPERIENCE IN OCCUPATIONAL THERAPY (LEVEL I). Credits: 2. Practice hours per week: 8. Prerequisite(s): TEOC-1005, TEOC-1121. Corequisite(s): None. The course *Introduction to Practice in Occupational Therapy (Level I)* exposes students to their first practice experience in a real therapeutic environment. Develops a trust and knowledge level of the consumers' necessities of the Occupational Therapy services. It is a 15-week experience where the student is exposed to observation of the Occupational Therapy intervention processes on different environments of services provision in Puerto Rico. This practice is divided in two phases: phase I and phase II. On the first phase the student and professor in charge of the course will visit five different institutions offering Occupational Therapy services. By this, the student will have a clearer and ample vision of the different work environments, whether traditional or non-traditional environments where the Occupational Therapy service is offered. On the second phase, each student will be assigned to a practice scenario to directly observe and participate on different aspects of the Occupational Therapy processes.

TEOC-1109. PRACTICE EXPERIENCE ON MENTAL HEALTH. Credits: 2. Practice hours per summer: 320. Prerequisite(s): TEOC-1042, TEOC-1105. Corequisite(s): None. This is a supervised clinical practice of level II in Mental Health. The student is assigned to a practice center for an eight-week period on which he/she will have the opportunity to develop skills in the application of intervention processes used on the Occupational Therapy Mental Health area. The student will apply organization and administration concepts relevant for an Occupational Therapy Assistant. It is promoted the clinical reasoning appropriate to the role of the Occupational Therapy Assistant, framed in the roles, values and principles that facilitate the ethical conduct, professionalism, and the development of basic competencies in order to provide services. The design of experience and the execution of the student will be enclosed in the Occupational Therapy Practice Framework: Dominium and Process, and in the objectives of this clinical experience.

TEOC-1121. THERAPEUTIC MEANS I. Credits: 3. Lecture hours per week: 6. Prerequisites): None. Corequisite(s): None. The course emphasizes the therapeutic value and the unique nature of the occupation using manual arts. The students will construct a pre-cut project and six handicrafts. Will perform a therapeutic analysis of each one. The course emphasizes on several profession basic principles, such as: the significance of the occupation and activity with purpose. Includes the interaction among the execution on the areas of occupation, performance skills, context, activity demands, and client factors through the occupation/activity analysis. This course also presents therapeutic adaptations of the environment, tools, materials and equipment, and recycling. Discusses topics of security, equipment maintenance, precautions, and the Occupational Therapy Practice Framework: Competency and Process Area, AOTA 2002. Includes laboratory conferences, demonstrations, and experiences. Each section of the course is limited to a maximum of 15 students.

TEOC-1122. THERAPEUTIC MEANS II. Credits: 2. Lecture hours per week: 3. Prerequisite(s): TEOC-1121. Corequisite(s): None. The course emphasizes on aspects related to the execution on the occupation area and on the analysis of activities with therapeutic purpose. Also, emphasizes on security rules and precaution, measures system, manual and electrical tools, administrative processes, projects in wood and tissue, and promotion activity of the profession. Fundamental elements are studied in the intervention therapeutic process and its relationship with the Occupational Therapy profession.

TEOC-2101. PHYSICAL HEALTH I: KINESIOLOGY APPLIED TO OCCUPATIONAL THERAPY. Credits: 3. Lecture hours per week: 4. Prerequisite(s): BIOL-1011, BIOL-1012. Corequisite(s): None. This course includes readings, demonstration and practice of the human body movements, study of joints on which these movements occur, responsible muscles for these actions, and the innervation of these muscles. Also, includes principles of muscular physiology and muscle contraction, as well as body mechanics concepts and functional anatomy concepts applied to functional activities. Will demonstrate the basic principles of joints protection, simplification of tasks, body mechanics, safety procedures, and energy saving techniques. Also, will provide basic knowledge of the procedures' objectives to measure movement arch and muscular strength. Emphasis will be given to the development of orthotic equipment construction skills. Will include basic concepts about *assistive* equipment, such as: braces, crutches, and other ambulation equipment. This course will carry out a field visit as part of the clinical practice experience (Level I) in the area of Physical Health to expose students to different medical conditions and evaluation and intervention processes on Occupational Therapy.

TEOC-2102. PHYSICAL HEALTH II: HEALTH CONCEPTS IN OCCUPATIONAL THERAPY. Credits: 4. Lecture hours per week: 4. Prerequisite(s): TEOC-2101, BIOL-1013, BIOL-1014. Corequisite(s): None. The course includes general concepts of disease prevention and health maintenance through the life cycle, as well as public health basic concepts. Includes conferences and discussion over etiology, pathogenesis, symptomatology, and general medical treatment principles of physical conditions, in particular those related with nerve, musculoskeletal, cardiovascular, and respiratory systems, and with the aging processes. Also, includes Occupational Therapy basic intervention processes in Physical Health. Students

will complete an interview module with an individual who has a physical condition to reinforce the Level II clinical practice and to complement intervention processes that will be discussed in the course Physical Health III. Critical/clinical thinking skills are encouraged during the laboratory through activities of exploration, conceptualization, and application (Model ECA).

TEOC-2103. PHYSICAL HEALTH III: OCCUPATIONAL THERAPY INTERVENTION IN PHYSICAL HEALTH. Credits: 3. Lecture hours per week: 4. Prerequisite(s): BIOL-1013, BIOL-1014, TEOC-2101, TEOC-2102. Corequisite(s): None. This course includes conferences, instructional modules, class discussions, laboratories, and Occupational Therapy intervention practice strategies used on physical conditions that affect mainly the nervous, musculoskeletal, cardiovascular, respiratory, and other systems. Students will analyze the reference frames and the evaluation and intervention processes which are applied on the physical health area. Also, will apply specific intervention techniques on those most attended conditions in this area of specialty. Topics of emerging Occupational Therapy areas are discussed, such as visual problems and intervention, ergonomic, and others. It will be applied in the Occupational Therapy Practice Framework: Competency and Process Area in the intervention processes. To facilitate the teaching-learning process, the course included therapeutic analysis, written reports, hypothetical cases, documentation, and practice, as well as assessment techniques in the classroom. To integrate what was learned, a field visit will be included to reinforce the Level I practice in the physical health area. In accordance with the course nature and its laboratories, the maximum capacity is limited to 15 students.

TEOC-2106. OCCUPATIONAL THERAPY SERVICE IN THE COMMUNITY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TEOC-1042, TEOC-1105. Corequisite(s): None. The course of Occupational Therapy (OT) Service in the Community studies and practices the provision of OT services in the community considering general aspects concerning the promotion of community rehabilitation on different populations and different practice areas of the natural environment (example: school, community centers, homes, and others related). The models, role, and intervention of the Occupational Therapy professional in the community service system are discussed. Includes practice activities in the community where educational modules of children and adolescents, adults and elderly cases receiving services in the areas of pediatrics, physical and mental health, are approached. In accordance with the course nature and its practice experiences in the community, the course uses service centers with an active contract. The capacity of each section is limited to a maximum of 15 students because of the practice experience in the community (group field trips).

TEOC-2109. CLINICAL PRACTICE EXPERIENCE ON PHYSICAL HEALTH OR PEDIATRICS. Credits: 2. Practice hours per summer: 320. Prerequisite(s): TEOC-1122, TEOC-2103, TEOC-2115, TEOC-2116, TEOC-2112. Corequisite(s): None. Supervised clinical practice of level II in the area of Physical Dysfunction or Pediatrics. The student is assigned to the practice center for an eight-week period where he/she will have the opportunity to develop skills in the application of intervention processes used in Physical Dysfunction or Pediatrics of Occupational Therapy. The student will apply organization and administration concepts relevant to the role as an Occupational Therapy Assistant. It is encouraged the clinical reasoning appropriate to the role of the Occupational Therapy Assistant framed in the roles, values, and principles that facilitate the ethical conduct, professionalism, and the basic competencies development to provide services. The design of experience and the execution of the student will be enclosed in the Occupational Therapy Practice Framework: Dominium and Process and in the objectives if this clinical experience.

TEOC-2111. OCCUPATIONAL THERAPY INTERVENTION IN PEDIATRICS I. Credits: 3. Lectures hours per week: 3. Prerequisite(s): TEOC-2101, BIOL-1013, BIOL-1014. Corequisite(s): None. This course is intended to increase and reinforce the basic knowledge related to the area of Pediatrics, as well as to develop basic competencies for therapeutic intervention. Emphasizes topics related to the legislation that impacts infants, children, adolescents, and family; aspects of the child's growth and development; intervention process; and documentation. Also, will discuss general concepts related to the family, medical conditions and intervention, and different community and educational clinical environments which provide Occupational Therapy services to this population. Through the models of exploration, conceptualization, and application, it is promoted the critical/clinical thinking skills.

TEOC-2112. OCCUPATIONAL THERAPY INTERVENTION IN PEDRIATICS II. Credits: 2. Lecture hours per week: 2. Prerequisite(s): TEOC-2111. Corequisite(s): None. The course is intended to increase and reinforce the basic knowledge related to the Pediatrics area through experiences of conferences and laboratories, as well as to develop basic competencies for therapeutic intervention. Emphasizes topics related to reference frame, intervention process, modalities of intervention, and documentation. The course integrates experiences of laboratory with conferences to implement them in the pediatric population. Through the models of exploration, conceptualization, and application (model ECA) it is encouraged the skills development of critical/clinical thinking. In accordance with the course nature and its laboratory experiences, each section is limited to a maximum of 15 students.

TEOC-2115. INTEGRATION SEMINAR IN OCCUPATIONAL THERAPY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TEOC-2106, TEOC-2102, TEOC-2111. Corequisite(s): None. The course of Integration Seminar in Occupational Therapy offers the opportunity to integrate knowledge, theories, and skills on the areas of Occupational Therapy basic principles and intervention in Mental Health, Physical Health, and Pediatrics. Clinical cases are studied to integrate theory and practice. For this purpose, it is used the learning strategy based on problem (A.B.P., by its Spanish acronym) and the practice based on evidence (P.B.E., by its Spanish acronym) for solving clinical cases on clinical and community context. Also, it is pretended to stimulate the learning aimed at clinical/critical reasoning, the work in collaborative group and in team. The student will recognize the importance of auto-learning to strengthen his/her professional career.

TEOC-2116. APPLICATION OF ASSISTIVE TECHNOLOGY IN OCCUPATIONAL THERAPY. Credits: 2. Hours per semester: 30. Prerequisite(s): TEOC-2106, TEOC-2102, TEOC-2111. Corequisite(s): None. The course presents the analysis of the theoretical and practical bases of the use of Assistive Technology (AT) on different Occupational Therapy areas of services provided for people with impairments. Emphasis is given to integration of low and high-cost assistive technology on different scenarios, the occupational roles, and the client's educational and the family environment. Also, discusses the intervention models of services related to the process of evaluation and identification of the clients' necessities. The course integrates laboratory experiences with conferences for the construction of assistive technology equipment applied to hypothetical cases, among other activities of application. In accordance with the course nature and its laboratory experiences, each section is limited to 15 students.

FACULTY

ORTIZ ORTIZ, INÉS T., *Assistant Professor,*
OTL, 2005; certified in IS/1399,
MA, 2012, Ana G. Méndez Univesity, Puerto Rico.

LEBRÓN RIVERA, MAYRA E. *Full Professor*,
OTR/L, 1988; MPH, 1992; NTD, 1995, University of Puerto Rico, Puerto Rico.

ORTIZ CONCEPCIÓN, MADELINE. *Associate Professor,*
OTR/L, 1995; M.Ed, CPL, 2003, Turabo University, Puerto Rico.

NATURAL SCIENCES

Biology

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History and Objectives

The Bachelor of Sciences with majors in General Biology, Microbiology, Wildlife Management, and Coastal Marine Biology has no parallel in the University of Puerto Rico System. Its design provides the opportunity of adjusting the offerings to the real demand of each specialty and, also, is in tune with the socioeconomic development of the east area and with students' needs and expectations. The Bachelor in Sciences, on any of its four Biology fields, will prepare the student to continue graduate studies on different Biology areas and will satisfy the necessities of students interested in pursuing studies on allied health professions and to perform as technicians in the industry. The Bachelor of Science with major in Coastal Marine Biology is a unique program in Puerto Rico that has as goal to prepare professionals with a solid knowledge on different Biology areas and, in particular, on marine environment; in addition to promote research and the scientific attitude which will help to develop better techniques of conservation, management and use of coastal resources.

Academic Programs

The Department offers a main curriculum on Biology and the option to select among four majors: Microbiology, Wildlife Management, General Biology, and Coastal Marine Biology.

Microbiology: The graduate student from the Microbiology program will have a complete main preparation in Biology, along with a specialized capacitation in Microbiology with emphasis in the development of skills applicable to technology and modern industries.

Wildlife Management: The Wildlife Management program's graduate will receive a specialized preparation in management and conservation of the earth's natural systems, with emphasis on Puerto Rico's flora and fauna.

General Biology: The General Biology component will develop biologists with knowledge on all basic disciplines of Biology, which will allow them to continue studies in sciences, allied health professions, or perform in technical jobs on governmental agencies or private industries.

Coastal Marine Biology: Prepares professionals qualified to develop, improve, and administer programs of marine and coastal resources, whether on government agencies as in private industries. This bachelor program is unique in Puerto Rico.

BACHELOR OF SCIENCES WITH MAJOR IN MICROBIOLOGY

Curricular Sequence

Summary of credits:

General courses in liberal arts.....42
Genera courses in Sciences.....44
Core courses.....35
Free electives.....12
Total.....133

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I ***or***	3
INGL3103	*Intermediate English I*	
QUIM3001	General Chemistry I	4
QUIM3003	Laboratory of General Chemistry I	0
MATE3018	Pre-Calculus and Analytical Geometry ***or***	4
MATE3171	*Pre-Calculus I (3 crs.)*	
BIOL3011	General Biology I	4
BIOL3013	Laboratory of General Biology I	0
	Total 17 or	18

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II ***or***	3
INGL3104	*Intermediate English II*	
QUIM3002	General Chemistry II	4
QUIM3004	Laboratory of General Chemistry II	0
MATE3061	Calculus I ***or***	4
MATE3172	*Pre-Calculus II (3 crs.)*	
BIOL3012	General Biology II	4
BIOL3014	Laboratory of General Biology II	0
	Total 17 or	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3201	Grammar, Composition and Analytical Reading I ***or***	3
INGL3221	*Introduction to Literature I*	
COMP3005	Introduction to the Use of Computers	3
MATE3061	*Calculus I (4 crs.)*	
QUIM3031	Organic Chemistry I	4
QUIM3033	Laboratory of Organic Chemistry I	0
BIOL3420	Animal Organismal Biology	3
BIOL3421	Laboratory of Animal Organismal Biology	0
BIOL3305	Genetics	4
BIOL3306	Laboratory of Genetics	0
	Total 18 or	17

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
INGL3202	Grammar, Composition and Analytical Reading II ***or***	3
INGL3222	*Introduction to Literature II*	
INTD4026	Responsible Conduct on Biomedical Research ***or***	3
FILO4031	*Logic I* ***or***	
FILO4471	*Philosophy of Science I* ***or***	
FILO3005	*Introduction to Ethics*	
QUIM3032	Organic Chemistry II	4
QUIM3034	Laboratory of Organic Chemistry II	0
BIOL4425	General Botany	3
BIOL4429	Laboratory General Botany	0
BIOL3115	General Ecology	4
BIOL3116	Laboratory of General Ecology	0
	Total	17

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3201	Introduction to Literary Genres I	3
HUMA3021	Cultural Manifestations of Western Man I	3
FISI3011	University Physics I	3
FISI3013	Laboratory of University Physics I	1
BIOL3705	General Microbiology	4
BIOL3707	Laboratory of General Microbiology	0
BIOL3010	Cellular and Molecular Biology	3
BIOL3020	Laboratory of Cellular and Molecular Biology	0
	Total	17

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
HIST3245	History of Puerto Rico - Compendium	3
ESPA3202	Introduction to Literary Genres II	3
HUMA3022	Cultural Manifestations of Western Man II	3
FISI3012	University Physics II	3
FISI3014	Laboratory of University Physics II	1
BIOL4315	Applied Microbiology	3
BIOL3707	Laboratory of Applied Microbiology	0
	Total	16

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
CISO3121	Introduction to Social Sciences I	3
BIOL4028	Microbial Ecology	3
BIOL4029	Laboratory of Microbial Ecology	0
BIOL3019	Developmental Biology	3
BIOL3030	Laboratory of Developmental Biology	0
XXXX	Elective	3
XXXX	Elective	3
	Total	15

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
CISO3122	Introduction to Social Sciences II	3
BIOL3569	Immunology	2
BIOL4367	Aspects of Industrial Microbiology	3
XXXX	Elective	3
XXXX	Elective	3
	Total	14

BACHELOR OF SCCIENCES WITH MAJOR IN WILDLIFE MANAGEMENT

Curricular Sequence

Summary of credits:

General courses in liberal arts.....42
General courses in Sciences.....44
Core courses.....35
Free electives.....12
Total.....133

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I ***or***	3
INGL3103	*Intermediate English I*	
HUMA3021	Cultural Manifestations of Western Man I	3
MATE3018	Pre-Calculus and Analytical Geometry ***or***	4
MATE3171	*Pre-Calculus I* ***or***	
MATE3172	*Pre-Calculus II*	
BIOL3011	General Biology I	4
BIOL3013	Laboratory of General Biology I	0
	Total	17

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II ***or***	3
INGL3104	*Intermediate English II*	
HUMA3022	Cultural Manifestations of Western Man II	3
MATE3061	Calculus I	4
BIOL3012	General Biology II	4
BIOL3014	Laboratory of General Biology II	0
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3201	Grammar, Composition and Analytical Reading I	3
COMP3005	Introduction to the Use of Computers	3
QUIM3001	General Chemistry I	4
QUIM3003	Laboratory of General Chemistry I	0
BIOL3420	Animal Organismal Biology	3
BIOL3421	Laboratory of Animal Organismal Biology	0
BIOL4425	General Botany	3
BIOL4429	Laboratory of General Botany	0
	Total	16

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
INGL3202	Grammar, Composition and Analytical Reading II	3
QUIM3002	General Chemistry II	4
QUIM3004	Laboratory of General Chemistry II	0
BIOL4447	Biology of Terrestrial Vertebrates of Puerto Rico	3
BIOL4448	Laboratory of Biology of Terrestrial Vertebrates of Puerto Rico	0
BIOL4435	Taxonomy of Vascular Plants	3
BIOL4436	Laboratory of Taxonomy of vascular Plants	0
BIOL3115	General Ecology	4
BIOL3116	Laboratory of General Ecology	0
	Total	17

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3201	Introduction to Literary Genres I	3
QUIM3031	Organic Chemistry I	4
QUIM3033	Laboratory of Organic Chemistry I	0
FISI3011	University Physics I ***or***	3
FISI3001	*General Physics I*	
FISI3013	Laboratory of University Physics I ***or***	1
FISI3003	*Laboratory of General Physics I*	
BIOL3740	Biometry	3
BIOL3305	Genetics	4
BIOL3306	Laboratory of Genetics	0
	Total	18

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3202	Introduction to Literary Genres II	3
QUIM3032	Organic Chemistry II	4
QUIM3034	Laboratory of Organic Chemistry II	0
FISI3012	University Physics II ***or***	3
FISI3002	*General Physics II*	
FISI3014	Laboratory of University Physics II ***or***	1
FISI3004	*Laboratory of General Physics II*	
BIOL4558	Ecology of Tropical Terrestrial Communities	3
BIOL4559	Laboratory of Ecology of Tropical Terrestrial Communities	
	Elective	3
	Total	17

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
HIST3245	History of Puerto Rico – Compendium	3
CISO3121	Introduction to Social Sciences I	3
BIOL3019	Developmental Biology	3
BIOL3030	Laboratory of Developmental Biology	0
BIOL4458	Population Ecology	3
BIOL4459	Laboratory of Population Ecology	0
	Elective	3
	Total	15

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
CISO3122	Introduction to Social Sciences II	3
BIOL4567	Wildlife Management	3
BIOL4568	Laboratory of Wildlife Management	0
FILO4471	Philosophy of Science I ***or***	3
FILO4031	*Logic I*	
	Elective	3
	Elective	3
	Total	15

BACHELOR OF SCIENCES WITH MAJOR IN GENERAL BIOLOGY

Curricular Sequence

Summary of credits:

General courses in liberal arts.....42
General courses in Sciences.....44
Core courses.....35
Free electives.....12
Total.....133

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I ***or***	3
INGL3103	*Intermediate English I*	
MATE3018	Pre-Calculus and Analytical Geometry ***or***	4
MATE3171	*Pre-Calculus I* ***or***	
MATE3172	*Pre-Calculus II*	
QUIM3001	General Chemistry I	4
QUIM3003	Laboratory of General Chemistry I	0
BIOL3011	General Biology I	4
BIOL3013	Laboratory of General Biology I	0
	Total	18

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II ***or***	3
INGL3104	*Intermediate English II*	
MATE3061	Calculus I	4
QUIM3002	General Chemistry II	4
QUIM3004	Laboratory of General Chemistry II	0
BIOL3012	General Biology II	4
BIOL3014	Laboratory of General Biology II	0
	Total	18

SEGUNDO AÑO - PRIMER SEMESTRE

Code	Course	Crs.
INGL3201	Grammar, Composition and Analytical Reading I ***or***	3
INGL3221	*Introduction to Literature I*	
CISO3121	Introduction to Social Sciences I	3
QUIM3031	Organic Chemistry I	4
QUIM3033	Laboratory of Organic Chemistry	0
BIOL3420	Animal Organismal Biology	3
BIOL3421	Laboratory of Animal Organismal Biology	0
BIOL3305	Genetics	4
BIOL3306	Laboratory of Genetics	0
	Total	17

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
INGL3202	Grammar, Composition and Analytical Reading II	3
INGL3222	*Introduction to Literature II*	
CISO3122	Introduction to Social Sciences II	3
QUIM3032	Organic Chemistry II	4
QUIM3034	Laboratory of Organic Chemistry II	0
BIOL4425	General Botany	3
BIOL4429	Laboratory of General Botany	0
BIOL3115	General Ecology	4
BIOL3116	Laboratory of General Ecology	0
	Total	17

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3201	Introduction to Literary Genres I	3
FISI3011	University Physics I ***or***	3
FISI3001	*General Physics I*	
FISI3013	Laboratory of University Physics I ***or***	1
FISI3003	*Laboratory of General Physics I*	
BIOL3740	Biometry	3
BIOL3231	Human Biology I	3
BIOL3233	Laboratory of Human Biology I	0
COMP3005	Introduction to the Use of Computers	3
	Total	16

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3202	Introduction to Literary Genres II	3
FISI3012	University Physics II ***or***	3
FISI3002	*General Physics II*	
FISI3014	Laboratory of University Physics II ***or***	1
FISI3004	*Laboratory of General Physics II*	
BIOL3232	Human Biology II	3
BIOL3234	Laboratory of Human Biology II	0
BIOL3705	General Microbiology	4
BIOL3707	Laboratory of General Microbiology	0
	Elective	3
	Total	17

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
HUMA3021	Cultural Manifestations of Western Man I	3
INTD4026	Responsible Conduct on Biomedical Research ***or***	3
FILO4031	*Logic I* ***or***	
FILO4471	*Philosophy of Science I*	
BIOL3010	Cellular and Molecular Biology	3
BIOL3020	Laboratory of Cellular and Molecular Biology	0
BIOL3569	Immunology	2
	Elective	3
	Total	14

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
HUMA3022	Cultural Manifestations of Western Man II	3
HIST3245	History of Puerto Rico – Compendium	3
BIOL3019	Developmental Biology II	3
BIOL3234	Laboratory of Developmental Biology II	0
	Elective	3
	Elective	3
	Total	15

BACHELOR OF SCIENCES WITH MAJOR IN COASTAL MARINE BIOLOGY

Curricular Sequence

Summary of credits:

General courses in liberal arts.....42
General courses in Sciences.....44
Core Courses.....34
Recommended electives in the specialty*.....6
Free electives.....6
Total.....132

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I ***or***	3
INGL3103	*Intermediate English I*	
CISO3121	Introduction to Social Sciences I	3
MATE3018	Pre-Calculus and Analytical Geometry ***or***	4
MATE3171	*Pre-Calculus I* ***or***	
MATE3172	*Pre-Calculus II*	
BIOL3011	General Biology I	4
BIOL3013	Laboratory of General Biology I	0
	Total	17

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II ***or***	3
INGL3104	*Intermediate English II*	
CISO3122	Introduction to Social Sciences II	3
MATE3061	Calculus I	4
BIOL3012	General Biology II	4
BIOL3014	Laboratory of General Biology II	0
	Total	17

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3221	Introduction to Literature I	3
ESPA3201	Introduction to Literary Genres I	3
QUIM3001	General Chemistry I	4
QUIM3003	Laboratory of General Chemistry I	0
BIOL3115	General Ecology	4
BIOL3116	Laboratory of General Ecology	0
BIOL4425	General Botany	3
BIOL4429	Laboratory of General Botany	0
	Total	17

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
INGL3222	Introduction to Literature II	3
ESPA3202	Introduction to Literary Genres II	3
QUIM3002	General Chemistry II	4
QUIM3004	Laboratory of General Chemistry II	0
BIOL3305	Genetics	4
BIOL3306	Laboratory of Genetics	0
BIOL3420	Animal Organismal Biology	3
BIOL3421	Laboratory of Animal Organismal Biology	0
	Total	17

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
HIST3245	History of Puerto Rico – Compendium	3
QUIM3031	Organic Chemistry I	4
QUIM3033	Laboratory of Organic Chemistry I	0
FISI3011	University Physics I ***or***	3
FISI3001	*General Physics I*	
FISI3013	Laboratory of University Physics I ***or***	1
FISI3003	*Laboratory of General Physics I*	
BIOL3117	Introduction to Oceanography	4
BIOL3118	Laboratory of Introduction to Oceanography	0
	Elective	3
	Total	18

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
COMP3005	Introduction to the Use of Computers	3
QUIM3032	Organic Chemistry II	4
QUIM3034	Laboratory of Organic Chemistry II	0
FISI3012	University Physics II ***or***	3
FISI3002	*General Physics II*	
FISI3014	Laboratory of University Physics II ***or***	1
FISI3004	*Laboratory of General Physics II*	
BIOL3121	Coastal Ecology	3
BIOL3122	Laboratory of Coastal Ecology	0
	Elective	3
	Total	17

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
HUMA3021	Cultural Manifestations of Western Man I	3
GEOG3165	Geography of Puerto Rico	3
BIOL4077	Coastal Resources	3
BIOL4076	Seminar of Coastal Topics	2
	Elective	3
	Total	14

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
HUMA3022	Cultural Manifestations of Western Man II	3
BIOL4078	Coastal Geomorphology	3
BIOL3019	Developmental Biology	3
BIOL3030	Laboratory of Developmental Biology	0
BIOL4075	Problems in Coastal Development	2
	Elective	3
	Total	14

** 6 of the 12 elective credits will be in Biology.*

COURSE DESCRIPTIONS

BIOL-1011. HUMAN ANATOMY AND PHISIOLOGY I. Credits: 4. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-1012. Study of fundamental principles of the human body's anatomy and physiology. Study of the cell's morphology and physiology and the skeletal, muscular, and nervous systems from a histological, anatomical, and physiological point of view. Course designed for students of the Associate Degree in Occupational Therapy and of the Bachelor in Nursing.

BIOL-1012. LABORATORY OF HUMAN ANATOMY AND PHISIOLOGY I. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-1011. Laboratory practices that complement and supplement the course BIOL-1011. Studies the basic concepts of chemistry, microscopy techniques, cell morphology and physiology, and the systems studied in class. Uses models, movies, and other audiovisual resources to ensure a better understanding of the topics being studied.

BIOL-1013. HUMAN ANATOMY AND PHISIOLOGY II. Credits: 4. Lecture hours per week: 3. Prerequisite(s): BIOL-1011, BIOL-1012. Corequisite(s): BIOL-1014. Study of fundamental principles of the human body's anatomy and physiology, in particular of the digestive, respiratory, circulatory, endocrine, and urogenital systems. Emphasizes the interrelation of all systems in the body's normal functioning coordination. Course designed for students of the Associate Degree in Nursing, Associate Degree in Physical Therapy, Associate Degree in Occupational Therapy, and of the Bachelor in Nursing.

BIOL-1014. LABORATORY OF HUMAN ANATOMY AND PHISIOLOGY II. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-1013. Laboratory practices that complement and supplement the course BIOL-1013. Studies the anatomy and physiology of the systems discussed in class and their interrelation. Uses models, movies, and other audiovisual resources to ensure a better understanding of the topics being studied.

BIOL-2001. ELEMENTAL MICROBIOLOGY. Credits: 4. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-2002. Study of the different microorganisms' groups, with emphasis on those who affect humans. Also, studies the structure, function, metabolism, and genetics of microorganisms and the principles of immunology. Course designed for students of the Nursing Associate Degree and Bachelor.

BIOL-2002. LABORATORY OF ELEMENTAL BIOLOGY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-2001. Practice techniques of asepsis, disinfection, dyeing, isolation, and culture of microorganisms. It emphasizes the use of bacterial growth control methods. Course designed for students of the Nursing Associate Degree and Bachelor.

BIOL-3010. CELLULAR AND MOLECULAR BIOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3012, BIOL-3014, BIOL-3305-3306. Corequisite(s): BIOL-3020. Study of the cell's structure and function, with emphasis on molecular aspects. Includes nucleus-cytoplasmic relations, membranous systems, bioenergetics, and cell's reproduction and motility.

BIOL-3011. GENERAL BIOLOGY I. Credits: 4. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-3013. Study of fundamental principles of Biology, with emphasis on molecular aspects. Includes chemistry fundamentals, the cell as an essential unit of life, and analyzes aspects of thermodynamics and cellular biochemistry processes as integrated systems. It is oriented towards students of Natural Sciences' Bachelor.

BIOL-3012. GENERAL BIOLOGY II. Credits: 4. Lecture hours per week: 3. Prerequisite(s): BIOL-3011-3013. Corequisite(s): BIOL-3014. Studies the principles of Mendelian and molecular genetics, the genetic control mechanisms, animals' reproductive systems, and the development. This course integrates topics of evolution, ecology, and behavior that complement the general view of organisms as members of the biosphere.

BIOL-3013. LABORATORY OF GENERAL BIOLOGY II. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-3011. Laboratory experiences that complement and supplement the course of General Biology I. The laboratory practices are developed under direct supervision of the professor, who oversees guiding the students through introductory conferences that are complemented with the use of audiovisual resources.

BIOL-3014. LABORATORY OF GENERAL BIOLOGY II. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-3012. Laboratory experiences that complement and supplement the course of General Biology II. The laboratory practices are developed under the direct supervision of the professor, who oversees guiding the student through introductory conferences that are complemented with the use of audiovisual resources.

BIOL-3019. DEVELOPMENTAL BIOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011,

BIOL-3013, BIOL-3012, BIOL-3014. Corequisite(s): BIOL-3030. Study of processes and patterns of development on different organisms and its control. It includes a synthesis of the plants and animals' development that covers different levels of molecular, cellular, and organismal development in a balanced way. Also, studies some special aspects of development.

BIOL-3020. LABORATORY OF CELLULAR AND MOLECULAR BIOLOGY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-3010. Laboratory practices that complement and supplement the course of Cellular and Molecular Biology. Emphasizes the use of molecular and cellular analysis techniques.

BIOL-3024. INTRODUCTION TO BIOCHEMISTRY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011-3013; BIOL-3012, BIOL-3014. Corequisite(s): None. In this course it will be studied the basic chemical components of living matter, as well as the most important chemical reactions that these components carry out within the biological systems. It will discuss the fundamental principles that will allow the student a global understanding of energy flow and of the metabolism on biological systems. Emphasis will be given on general regulation mechanisms that operate on metabolic paths.

BIOL-3030. LABORATORY OF DEVELOPMENTAL BIOLOGY. Credits: 3. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-3019. Studies and experiments related with development processes and patterns in plants and animals. Biochemistry techniques will be introduced, and the learned concepts and methods will be applied to the analysis of situations and problems related to development.

BIOL-3115. GENERAL ECOLOGY. Credits: 4. Lecture hours per week: 3. Prerequisite(s): BIOL-3012-3014. Corequisite(s): BIOL-3116. Study of the interrelation among organisms and their natural environment. Structure and function of ecosystems are studied. Emphasis is given to ecological existing systems in Puerto Rico.

BIOL-3116. LABORATORY OF GENERAL ECOLOGY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-3115. Laboratory practices that complement the course General Ecology. Practical experiences and field trips that emphasize ecological aspects of common species in Puerto Rico, structure, and composition of tropical terrestrial communities.

BIOL-3117. INTRODUCTION TO OCEANOGRAPHY. Credits: 4. Lecture hours per week: 3. Prerequisite(s): BIOL-3115, BIOL-3116. Corequisite(s): BIOL-3118. Study of geological, physical, chemical, and biological principles, which regulate the oceans and their influence on marine communities. In laboratory practices, the student will get familiarized with modern analysis techniques of the physical and chemical parameters of coastal waters; among others: temperature, currents, transparencies, salinity, and chemical composition.

BIOL-3118. LABORATORY OF INTRODUCTIONTO OCEANOGRAPHY. Credits: 0. Laboratory hours per week: 4. Prerequisite(s): None. Corequisite(s): BIOL-3117. Laboratory practices of the course Introduction to Oceanography. Physical, chemical, and biological characteristics of Puerto Rico's coastal waters will be measured. The student will get familiarized with modern analysis techniques of the different parameters.

BIOL-3121. COASTAL ECOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3115, BIOL-3116. Corequisite(s): BIOL-3122. Study of coastal ecosystems, with emphasis on tropical ecosystems of Puerto Rico's coasts. The laboratory practices and field trips focus on the analysis of morphological-taxonomical and productivity relations of species that compose these ecosystems.

BIOL-3122. LABORATORY OF COASTAL ECOLOGY. Credits: 0. Laboratory hours per week: 3. Corequisite(s): BIOL-3121. Laboratory practices that complement and supplement the course Coastal Ecology. Includes field trips.

BIOL-3231. HUMAN BIOLOGY I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014. Corequisite(s): BIOL-3233. Study of the human being's biological nature. Fundamental concepts of the human body's anatomy on its different organization levels and the interrelation among structure and physiology of integumentary, skeletal, muscular, and central nervous systems are studied. Analyzes homeostasis concepts and the mechanisms by which body systems recover and maintain homeostasis. Includes disorders of each body system. The course is designed for students of the Bachelor of Sciences in Biology.

BIOL-3232. HUMAN BIOLOGY II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3231. Corequisite(s): BIOL-3234. Continue to study the system's anatomy and physiology of the human body. Completes the study of the nervous system and relates it to endocrine, cardiovascular, circulatory, lymphatic, respiratory, digestive, urinary, and reproductive systems. Analyzes homeostatic mechanisms that operate on different situations. Anatomic and physiologic changes are considered during stages of pregnancy, birth, development, growth, and aging. Fundamental principles about the human species evolution are discussed and the interaction of the human species with the environment is considered. Includes disorders of each body system. The course is designed for students of the Bachelor of Sciences in Biology.

BIOL-3233. LABORATORY OF HUMAN BIOLOGY I. Credits: 0. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-3231. Provides experiences that allow to understand the fundamental concepts of human anatomy and physiology and demonstrate the existing complementarity among structure and function. Exercises allow to develop skills in the use of laboratory equipment, practice of dissections and in the interpretation of obtained results. Includes histology, study of skeleton and joints, dissection of the skeletal muscles in cats, and dissection of brain and spinal cord. The laboratory is designed for students in the Bachelor of Sciences in Biology.

BIOL-3234. LABORATORY OF HUMAN BIOLOGY II. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-3232. Provides experiences that allow to understand concepts of human anatomy and physiology of special senses and of endocrine, cardiovascular, respiratory, digestive, urinary, and reproductive systems. Includes histology and the dissection of each system component. The laboratory exercises allow skills development in the use of equipment, results interpretation, and in the demonstration of the existing relation among anatomical traits and physiology in the primates. The laboratory is designed for students of the Bachelor of Sciences in Biology.

BIOL-3305. GENETICS. Credits: 4. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014. Corequisite(s): BIOL-3306. Study of the fundamental principles of heritage based on molecular biology concepts, which are: identification, action mechanism, and genetic material transmission. Studies in detail theories of the gene's physical organization, genetic behavior on individuals and populations, genetic linkage concept, and genetic control of the metabolism and development.

BIOL-3306. LABORATORY OF GENETICS. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-3305. Laboratory exercises to complement and supplement topics discussed in the course of Genetics. It emphasizes the handling of techniques used to establish the fundamental principles of heritage that will include classic, population and molecular genetics.

BIOL-3420. ANIMAL ORGANISMAL BIOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014. Corequisite(s): BIOL-3421. Includes the comparative study of invertebrates and vertebrates with emphasis in the taxonomy, anatomy, physiology, ecology, development, and phylogeny of each group of animals.

BIOL-3421. LABORATORY OF ANIMAL ORGANISMAL BIOLOGY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-3420. Will consist of practical experiences related with different invertebrate and vertebrate groups, with emphasis on species of Puerto Rico.

BIOL-3569. IMMUNOLOGY. Credits: 2. Lecture hours per week: 2. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014. Corequisite(s): None. Study of several defense mechanisms that the human body has against exogenous and endogenous agents.

BIOL-3705. GENERAL MICROBIOLOGY. Credits: 4. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014, BIOL-3305, BIOL-3306. Corequisite(s): BIOL-3707. Study of microorganisms and their activities, with emphasis on bacteria. Includes the evolution, classification and identification, reproduction, morphology, physiology, ecology, biochemistry, genetics, and control. Includes applied aspects, such as microbiology of food, soils, water, and basic principles of immunology.

BIOL-3707. LABORATORY OF GENERAL MICROBIOLOGY. Credits: 0. Laboratory hours per week: 5. Prerequisite(s): None. Corequisite(s): BIOL-3705. Laboratory exercises to complement and supplement the course of General Microbiology. Emphasizes the use of basic techniques for the study of microorganisms.

BIOL-3740. BIOMETRY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014. Corequisite(s): None. Study of several statistical techniques with application on Biology. Emphasis will be given to descriptive statistics, analysis of regressions and correlations, proofs of parametric and non-parametric hypothesis, and analysis of frequencies and variance. Also, calculators and computers will be used as mechanisms to facilitate and speed up statistical calculations and analysis.

BIOL-3925. INTRODUCTION TO SCIENTIFIC ILLUSTRATION. Credits: 2. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. Elective course for students interested on learning and developing the basic skills required to create scientific illustrations in the field of biology and to improve skills of detailed observation. Students will learn the skills to create scientific illustrations by pencil drawing, nib drawing, and aquarelle techniques, with emphasis in the importance of scale and proportion of biological specimens. Through the implementation of procedures in the improvement of observation and the experimentation of drawing techniques, the student will be able to create illustrations of high artistic and scientific quality.

BIOL-4013. INTRODUCTION TO ANIMAL BEHAVIOR. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3420, BIOL-3421. Corequisite(s): None. Introduction to animal behavior, including aspects of physiology, genetics, adaptation, and evolution. The course

integrates other biology branches and, at the same time, encourages the interest for conserving our live natural resources.

BIOL-4021. INTRODUCTION TO ORNITHOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3115, BIOL-3116. Corequisite(s): BIOL-4022. Introduction to the study of marine and terrestrial birds, with emphasis in the birds of Puerto Rico.

BIOL-4022. LABORATORY OF INTRODUCTION TO ORNITHOLOGY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-4021. Laboratory practices to complement topics discussed in the course of Introduction to Ornithology. Includes field trips.

BIOL-4026 SPECIAL TOPICS IN BIOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3012, BIOL-3014. Corequisite(s): None. The course discusses the basic topics, terminology, available resources, and advanced concepts associated to the course topics. The course will impact our students, in particular those who will pursue specialized areas and research. This course allows to offer topics on specialized areas that are not offered in a recurring way. This is an elective for students on any of the specialized areas of the Bachelor in Biology (Wildlife Management, General Biology, and Microbiology. *Note: There can be other prerequisite courses depending on the topic to be offered.*

BIOL-4028. MICROBIAL ECOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3705, BIOL-3707 y BIOL-3115, BIOL-3116. Corequisite(s): BIOL-4029. The course is aimed at students from the Bachelor Program in Biology with a Major in Applied Microbiology. It will study those biotic and abiotic factors that govern the interrelations among microorganisms and their natural environments. Topics to be discussed in this course include diversity, distribution, and dynamics of the populations. It is discussed also, the structure and physiology of the microorganisms as basis to understand the changes that they generate in their environment and, at the same time, to understand how the environment affects their structure, physiology, and behavior.

BIOL-4029. LABORATORY OF MICROBIAL ECOLOGY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-4028. The Microbial Ecology laboratory includes practical experiences in microorganism's sampling and collection, assessment of diversity, density, biomass and metabolic activity of microbial populations, analysis of nutrients, and characterization of the physical habitat. The laboratory experiences also include statistical data analysis and the construction and interpretation of models to describe the ecological niche occupied by certain microbial populations.

BIOL-4046. INTRODUCTION TO MYCOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3705, BIOL-3707. Corequisite: BIOL-4047. The course includes fundamental concepts of Mycology and its impact on daily life. Pretends to stimulate in the student the curiosity and concern of knowing the contribution of fungi to the natural and artificial environments and to human activities. Presents a general description of the main groups of fungi, their structure, metabolic activities, nutrition, and reproduction. Also, offers a comprehensive overview of fungal communities that can be found in the environment and the problems that they can cause on animals (including humans) and on plants. Presents the controls that can be used to limit growth of undesired fungi.

BIOL-4047. LABORATORY OF INTRODUCTION TO MYCOLOGY. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): BIOL 3705, BIOL3707. Corequisite: BIOL4046. Laboratory practices designed to guide the student in the understanding of Mycology basic principles and acquire the necessary experience to work with fungi. The first session of each laboratory consists of a brief discussion to help clarify the daily experience procedure. The laboratory experiences have been prepared as a Mycology introductory course for students pursuing a Bachelor of Sciences with a Major in Microbiology. These students must have experience working with live cultures and with microorganisms of the environment. The course consists of various laboratory experiences, which include microscopy, isolation techniques of fungi, use of synoptic keys, as well as description and counting of fungi in the environment. It is required a supervised special project where the student will prepare a 10-strain fungi collection isolated from the environment. Students will work on their project during the last weeks of laboratory.

BIOL-4075. PROBLEMS IN COASTAL DEVELOPMENT. Credits: 2. Lecture hours per week: 2. Prerequisite(s): BIOL-3121, BIOL-3122. Corequisite(s): None. Analysis and discussion of the usage conflicts that emerge from different demands of use on coastal zones: industrialization, housing, recreation, education, and natural resources. It will discuss alternatives of use, public politics, and government agencies involved in the administration of coastal zones.

BIOL-4076. SEMINAR OF COASTAL TOPICS. Credits: 2. Lecture hours per week: 2. Prerequisite(s): BIOL-3121, BIOL-3122. Corequisite(s): None. Discussion and study of several coastal aspects. Topics to be discussed will vary depending to the problems and demands at a moment. Students will analyze literature related to the coastal zone, present individual seminars and, also will participate on guest speakers' seminars.

BIOL-4077. COASTAL RESOURCES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3121, BIOL-3122.

Corequisite(s): None. Study of the different coastal natural resources, with emphasis on ecological, economical, and public politics aspects related with their exploitation.

BIOL-4078. COASTAL GEOMORPHOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3115, BIOL-3116. Corequisite(s): None. Study of physical, geological, and biological processes governing the form and development of the landscape, with special emphasis on the coastal region. It will point out principally the coastal systems of Puerto Rico. Occasional field trips.

BIOL-4125. SEMINAR ON ECONOMIC, SOCIAL, AND ENVIRONMENT LAWS. Credits: 2. Lecture hours per week: 2. Prerequisite(s): BIOL-3115, BIOL-3116. Corequisite(s): None. Study of federal and state environmental laws and their implications on social and economic programs and in pollution control. Includes usage and administration of biological marine resources from the legal point of view.

BIOL-4205. CLINICAL BACTERIOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3705, BIOL-3707. Corequisite(s): None. Studies on the bacteria that cause diseases in humans. Aspects, such as epidemiology, diagnosis of diseases, characteristics of organisms, clinical samples handling, identification of organisms, and control of diseases will be considered.

BIOL-4315. APPLIED MICROBIOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3705, BIOL-3707. Corequisite(s): BIOL-4316. Study of the role played by microorganisms on processes and activities related to food, agriculture, and public health. Discusses the method to elaborate and preserve food, food-borne diseases, and the impact of microorganisms on agriculture and in clinical areas.

BIOL-4316. LABORATORY OF APPLIED MICROBIOLOGY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-4315. The laboratory experiences are designed to complement the course of Applied Microbiology and will allow the student to develop skills of sample collection and handling for microbiological analyses, isolation and identification of microbes, practices of sterilization, disinfection, and preservation of materials, and handling and maintenance of laboratory equipment and instruments.

BIOL-4335. EVOLUTION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3012. Corequisite(s): None. Evolution mechanisms, processes, and effects; factors that cause genetic changes in populations; speciation; population genetics; coevolution and behavioral heritance.

BIOL-4367. ASPECTS OF INDUSTRIAL MICROBIOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3705, BIOL-3707. Corequisite(s): None. Study of industrial processes on which microorganisms, or the isolated enzymes of these, intervene. It will be discussed the classification and description of microorganisms that synthesize useful products for humans, genetic programming of organisms, microbial coordination of growth and metabolism, production methods, quality control of industrial products, and study of the regulations governing industrial production.

BIOL-4370. BIOINFORMATICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3305. Corequisite(s): None. Through conferences, presentations, workshops, and individualized projects, the course provides the basic concepts and the necessary skills to evaluate and use genetic information in a critical and effective way. Bioinformatics is about the management and analyzes of all biological information, including sequences of nucleic acids (DNA and RNA) and amino acids (proteins); RNA and proteins structures; evolutionary conservation, phylogenetic trees, and grouping of organisms; patterns of genes expression, functional interactions among molecules and metabolic paths, among others.

BIOL-4415. INTRODUCTION TO INVERTEBRATES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014. Corequisite(s): BIOL-4417. Introduction to the study of invertebrates, with particular emphasis in taxonomy, morphology, anatomy, ecology, physiology, development, and evolutionary and phylogenetic relations.

BIOL-4417. LABORATORY OF INTRODUCTION TO INVERTEBRATES. Credits: 0. Laboratory hours per week: 4. Prerequisite(s): None. Corequisite(s): BIOL-4415. Detailed study of taxonomical, morph-anatomical, and phylogenetic relations of invertebrate selected groups, with emphasis in species of Puerto Rico. Field trips are included.

BIOL-4425. GENERAL BOTANY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014. Corequisite(s): BIOL-4429. Study of the different groups contained in the plant kingdom, with emphasis in the morphology and evolution. Also, studies the physiological and development processes in plants.

BIOL-4426. GENERAL PARASITOLOGY. Credits: 3 Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014. Corequisite(s): BIOL-4427. Systematic study of the morphology, life cycle, and epidemiology of principal parasites, with emphasis in those that affect humans.

BIOL-4427. LABORATORY OF GENERAL PARASITOLOGY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-4426. Laboratory practices to complement course classes of General Parasitology.

BIOL-4429. LABORATORY OF GENERAL BOTANY. Credits: 0. Lecture hours per week: 3. Prerequisite(s): None.

Corequisite(s): BIOL-4425. Laboratory practices to complement topics discussed in the course General Botany.

BIOL-4435. TAXONOMY OF VASCULAR PLANTS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-4425, BIOL-4429. Corequisite(s): BIOL-4436. The course is an introduction to the study of the vascular plants' taxonomy. Includes studies of evolution, morphology, distribution, nomenclature, classification, and identification of a selected group of families, within the Pteridophytes, Gymnosperms, and Angiosperms groups, which use representative specimens of our flora. Taxonomy keys will be used for the identification of plant material. Also, the course includes field trips and a visit to a herbarium.

BIOL-4436. LABORATORY OF TAXONOMY OF VASCULARES PLANTS. Credits: 0 Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-4435. Laboratory practices that complement discussed topics in the course Taxonomy of Vascular Plants.

BIOL-4447. BIOLOGY OF TERRESTRIAL VERTEBRATES OF PUERTO RICO. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3420, BIOL-3421. Corequisite(s): BIOL-4448. Study of the origin, taxonomy, distribution, habitat, and aspects of conservation of terrestrial vertebrates in Puerto Rico. The course also includes the ecological impact of migratory and exotic vertebrates on resident vertebrates and vegetation.

BIOL-4448. LABORATORY OF BIOLOGY OF TERRESTRIAL VERTEBRATES OF PUERTO RICO. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s). BIOL-4447. Laboratory practices that complement topics discussed in Biology of terrestrial Vertebrates of Puerto Rico.

BIOL-4458. POPULATION ECOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3115, BIOL-3116. Corequisite(s): BIOL-4459. The course will present basic population ecology concepts at auto-ecological and community levels. It will be discussed the different ways to describe populations, the intraspecific competency, mathematical models of populations, co-evolution concept, interspecific relations, impact of predation and of parasites, life strategies, and the control of populations. The course will provide examples of tropical plants and animals and, as possible, of species existing in Puerto Rico and surrounding territories (Mona, Vieques, Culebra, Virgin Islands, as examples). Will evaluate cases of existing species in Puerto Rico and how to implement the class discussion to the handling of those species.

BIOL-4459. LABORATORY OF POPULATION ECOLOGY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-4458. This laboratory exposes students to the basic techniques used to describe populations, whether in the auto-ecological dimension or in the community dimension. Experiences will include: sampling types, design and implementation of sampling, demographic description of populations, use of tables and figures to describe birth rate, sex ratios, survival, mortality of populations, measuring and description of parasitism, predation and mutualism, intraspecific and interspecific competency, basic statistical tests to analyze and compare populations, alpha and beta distributions, and the use of computers for data analysis. The experiences will be held depending on the conditions at the moment.

BIOL-4558. ECOLOGY OF TROPICAL TERRESTRIAL COMMUNITIES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3740, BIOL-4447, BIOL-4448, BIOL-4435, BIOL-4436. Corequisite(s): BIOL-4559. This course will present general ecological concepts of terrestrial communities, of plants as well as of animals. Will be emphasized, among others, the modern theory of definition, distribution, composition, structure, sampling, classification, and organization of the communities, as well as concepts of diversity, succession, and climax. Some study perspectives of communities will be presented, such as morphological, physiological, and of population. Also, some of the ecological principles applied to the control of terrestrial communities will be discussed.

BIOL-4559. LABORATORY OF ECOLOGY OF TROPICAL TERRESTRIAL COMMUNITIES. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-4558. The laboratory of the course Ecology of Tropical Terrestrial Communities will include practical experiences in: sampling design and sampling of terrestrial communities, description of spatial structure, determination of various aspects of species diversity, and analysis of classification and indirect and direct organization of communities.

BIOL-4567. WILDLIFE MANAGEMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s). BIOL-4447, BIOL-4448, BIOL-4458, BIOL-4459. Corequisite(s): BIOL-4568. Study of techniques used in the management of populations, communities, and/or natural or artificial systems for the wise and clever usage of these resources, in harmony with ecological needs of the natural and social human systems. It is also integrated a study of public politic statutes and of practices used for conserving wildlife in Puerto Rico.

BIOL-4568. LABORATORY OF WILDLIFE MANAGEMENT. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-4567. Study of techniques used when managing populations, communities, and natural and artificial systems for the wise and clever usage of these resources, in harmony with the ecological needs of the natural and social human systems. The student is guided to understand technical, theoretical, and practical details, scientific as well as of public politic,

to generate proposals for the conservation of wildlife in Puerto Rico.

BIOL-4605. LIMNOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3115, BIOL-3116. Corequisite(s): BIOL-4606. Study of aquatic ecosystems, the morphological and taxonomical relations, and the effects of physical and chemical contaminants on these systems.

BIOL-4606. LABORATORY OF LIMNOLOGY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-4605. Laboratory practices to complement topics discussed in the course Limnology.

BIOL-4615. DIVING AND ITS APPLICATION TO MARINE STUDIES. Credits: 2. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): BIOL-4620. Method for the study of physical, chemical, biological, and geological parameters through diving techniques. Dominium of diving techniques and safety aspects. Practices in the study of benthic communities in a depth up to 90-feets. *Note: Requires knowing how to swim, a physical examination, and the instructor's permission.*

BIOL-4616. MARINE BOTANY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014. Corequisite(s): BIOL-4618. Study of taxonomical, morphological, physiological, and ecological relations, and the economic importance of vegetation in the marine environment. Emphasis will be given to algae and vascular plants.

BIOL-4617. SEMINAR ON MANGROVES AND REEFS. Credits: 2. Lecture hours per week: 2. Prerequisite(s): BIOL-3115, BIOL-3116. Corequisite(s): None. Special topics on the mangrove and reef. Includes the study of communities, origin, development, and ecological changes occurring in these. Includes trips and field experiences.

BIOL-4618. LABORATORY ON MARINE BOTANY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): BIOL-4616. Practical study of the taxonomical, morphological, physiological, and ecological relations of vegetation in the marine environment. Includes collection and study of these organisms, with emphasis in algae and vascular plants. Field trips are included.

BIOL-4620. LABORATORY OF DIVING AND ITS APPLICATION TO MARINE STUDIES. Credits: 0. Laboratory hours per week: 4. Prerequisite(s): None. Corequisite(s): BIOL-4615. Practical usage of the concepts and/or equipment presented in the course BIOL-4615, related to snorkeling and free diving, physical laws, and the physiology associated with diving. Relates the student with techniques for obtaining data and collecting organisms with adequate equipment.

BIOL-4621. ITHTYOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014. Corequisite(s): BIOL-4622. Study of the taxonomy, distribution, ecology, and evolution of fish, with special reference to marine and freshwater fish from the Caribbean and the Tropic Atlantic.

BIOL-4622. LABORATORY OF ITHTYOLOGY. Credits: 0. Laboratory hours per week: 4. Prerequisite(s): None. Corequisite(s): BIOL-4621. Practical study of collection, preservation, and identification of fish. Includes practical studies of distribution and ecology of fish. Specimens' dissection of the most important species. Field trips are included.

BIOL-4626. FISHING RESOURCES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3117, BIOL-3118. Corequisite(s): None. Analysis of the fishing techniques used in Puerto Rico. Includes discussion and comparative studies of the techniques used in Puerto Rico with those used on other countries. Evaluation of fishing resources, representative species, and their biological aspects.

BIOL-4628. SEMINAR IN MARINE TOPICS. Credits: 2. Lecture hours per week: 2. Prerequisite(s): BIOL-3117, BIOL-3118. Corequisite(s): None. Course designed to familiarize students with the skills required to carry out bibliographical studies on Marine Biology topics. The topics can change annually depending on the particular necessities or circumstances at the moment.

BIOL-4635. SEMINAR ON MARINE RESOURCES. Credits: 2. Lecture hours per week: 2. Prerequisite(s): BIOL-3115, BIOL-3116. Corequisite(s): None. Discussion and study of marine resources, with emphasis on resources of Puerto Rico. The following topics will be developed through the course: exploitation, administration, and conservation of marine resources.

BIOL-4895. EXPERIMENTAL BIOTECNOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, BIOL-3012, BIOL-3014, QUÍM 3001, QUIM-3002. Corequisite(s): None. Intensive laboratory course designed for students who are interested on acquiring practical experiences in basic techniques of manipulation and characterization of genes. The course is designed around a cloning gene experiment on which the following techniques are used: extraction and characterization of bacterial DNA, amplification of specific sequences of bacterial genome through PCR technique, DNA-DNA hybridization to detect specific sequences, and cloning and analysis of cloned sequences. The laboratory sessions will be complemented with the analysis of readings on principles associated with the techniques used in the course and their applications in areas such as basic research, medicine, industry, agriculture, ecology, and evolution. Oral and written presentations are key components of the course. To attend this course, the student must obtain the professor's consent.

BIOL-4907. SPECIAL PROBLEMS IN BIOLOGY. Credits: 1. Lecture hours per week: 1. Prerequisite(s): None. Corequisite(s): None. This is an introduction to the development of a bibliographical research on Biology topics. The main objective of the course is to develop in the student the skills that allow him/her to elaborate a scientific literature review on the selected problem, the writing of a monograph on that topic, and a research proposal in one of the aspects of it. *Note: Requires the approval, by one of the Biology faculty members, of the topic selected by the student, which literature can be studied and revised to prepare a research proposal.*

BIOL-4908. SPECIAL PROBLEMS IN BIOLOGY. Credits: 2. Lecture hours per week: 2. Prerequisite(s): BIOL-4907. Corequisite(s): None. Development of a research in Biology. The enrolled student has prepared, as part of the prerequisites, a monograph on the research problem and a proposal that will serve as a guide for the course works. During the semester, the student will adjust the proposed experimental design, obtain the research data, analyze the data, and write a report in the format of a scientific publication. *Note: Requires the approval of the research topic by a member of the Biology faculty.*

BIOL-4909. SPECIAL PROBLEMS IN BIOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This is an introduction to the development of a research in Biology. Includes the elaboration of a scientific literature review on the problem, the development of the experimental design, data collection, analysis of this data, and the final draft of a report in the format of a scientific publication. *Note: Approval of research topic by a member of the Biology faculty.*

BIOL-4925. SEMINAR ON BIOLOGY. Credits: 1. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. Discussion of literature on modern biology and related topics. Presentation, like seminar, of a topic chosen by each student based on literature recently published in main scientific journals. Also, a written report of this presentation is prepared.

BIOL-4990. INTRODUCTION TO RESEARCH. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Research project in the laboratory or in the field. Research is an integral aspect of academic education for a bachelor of science degree. The scientific endeavor is a basic component on all areas of biology. No matter the professional career the student is engaged in upon completion of their studies, a research base should facilitate and enable them to perform their tasks at a higher level. At the same time, research is a method of learning and generates knowledge, and for this is a very useful tool in academic and professional development.

BIOL-5548. NEUROBIOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3012, QUIM-3001, QUIM-3002, QUIM-3031, QUIM-3032. Corequisite(s): None. Introductory course where students are familiarized with different aspects of the nervous system. Will emphasize the nervous cell and the relation among its function, anatomy, and biochemistry. At the same time, this cellular unit is integrated to various physiological circuits to study cellular and organismal function.

CIBI-3001. FUNDAMENTALS OF BIOLOGY I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Study of the basic concepts in Biology, which include chemical structure and composition of living matter, the cell, cell's metabolism, taxonomy, ecology, genetics, and evolution. Includes conferences, discussions, and demonstrations. Course designed for students of all the bachelors, except for those of Natural Sciences. *Note: Not equivalent to BIOL-3011.*

CIBI-3002. FUNDAMENTALS OF BIOLOGY II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CIBI-3001. Corequisite(s): None. Continuation of the course CIBI-3001. Study of the basic concepts of human biology, which include development, reproduction, hormonal and nervous controls, and other topics related with human anatomy and physiology. Courses designed for students of all the bachelors, except for those of natural Sciences.

CINA-4995 GEOGRAPHIC INFORMATION SYSTEM. Credits: 3. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. Develop practical and theoretical skills in the management of geodata models. Develop practical and theoretical skills of space analysis using a geographic information system, focusing its application to the environmental planning, management of natural resources, and the definition, analysis and solution of environmental problems.

INTD-3110. WOMAN: SCIENCES FROM THE GENDER PERSPECTIVE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Discussion and analysis of topics related with the issue of the woman in natural sciences. Includes the discussion through group dynamic techniques of aspects such as: sexism in language, discrimination by gender, objectivity and neutrality of science, feminist criticism, biological determinism, and women contribution to the advances on science.

INTD-3505. INTRODUCTION TO THE MARINE ENVIRONMENT. Credits: 3. Conference hours per week: 3. Prerequisite(s): None. Corequisites(s): None. This course is aimed at students with a genuine interest in becoming familiar with the marine environment and its socioeconomic importance. The course will combine conferences, field trips and discussions with experts on marine issues in Puerto Rico. Special emphasis will be given to the east coast of Puerto Rico with a interdisciplinary focus.

INTD-4026. RESPONSIBLE BEHAVIOR IN BIOMEDICAL RESEARCH. Credits: 3. Lecture hours per week: 3. Prerequisite(s): BIOL-3011, BIOL-3013, CIBI-3001. Corequisite(s): None. This course presents a description of responsible behavior on biomedical research. The principles governing this conduct are discussed through the analysis of cases and situations on which these conflicts are considered and how they were solved. Analyzes ethical conflicts of research with human beings, animals, and other organisms. Also, considers implications of technology in the research with organisms. The student will develop critical thinking skills to review, analyze, and evaluate the standards of several topics already covered.

INTD-4055. COMPUTATIONAL METHODS APPLIED TO BIOLOGICAL SYSTEMS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3061. Corequisite(s): None. This course covers the mathematical fundaments and computational procedures for simulation, through models, of biological processes, such as: enzyme kinetics, photosynthesis, cell division, growth and regulation of populations, interactions of populations (competence and predation), and spatial distribution of populations and communities. Students will get familiarized with the underlying mathematical formulation in models of biological systems, which include difference equations, linear algebra and matrixes, differential equations, probability distributions, and spatial statistics. Evaluates computational methods and available programs software for the analysis and simulation of the studied biological systems. The course intends to develop in students interdisciplinary work skill through projects that allow deepening and research of covered topics.

FACULTY

ALICEA TORRES, KEVIN M. *Assistant Professor,*
PhD, 2020, University of Pennsylvania, United States.

AYALA DEL RÍOS, HÉCTOR L. *Full Professor*,
PhD, 2002, Michigan State University, United States.

CASILLAS MARTÍNEZ, LILLIAM. *Full Professor,*
PhD, 1998, Connecticut University, Storrs Campus, Connecticut, United States.

COLÓN CESARIO, MELISSA. *Assistant Professor,*
PhD, 2006, University of Puerto Rico, Puerto Rico.

DEL LLANO PUIG, ANA M. *Full Professor,*
PhD, 1989, University of Puerto Rico, Puerto Rico

DÍAZ PÉREZ, ARIEL. *Associate Professor,*
PhD, 1998, Cornell University, United States.

FERNÁNDEZ DEL VISO GÁMEZ, DENNY S. *Full Professor,*
PhD, 1997, University of Puerto Rico, Puerto Rico.

HERNÁNDEZ CRUZ, CARMEN J. *Full Professor*,
PhD, 1990, Fordham University, United States.

NIEVES MÉNDEZ, DEBORAH E. *Associate Professor,*
PhD, 2001, University of Puerto Rico, Puerto Rico

ORTIZ MARTÍNEZ, MARIO G. *Assistant Professor,*
PhD, 2014, University of Puerto Rico, Puerto Rico

PAGÁN FALCÓN, FRANCISCO J. *Associate Professor,*
MD, 1996, San Juan Bautista School of Medicine, Puerto Rico.

PARRILLA HERNÁNDEZ, DEBORAH. *Associate Professor,*
PhD, 2009, University of Puerto Rico, Puerto Rico.

REYES PESARESI, PATRICK. *Assistant Professor,*
PhD, 2011, Universidad de Puerto Rico, Puerto Rico

TRAVERSO AVILÉS, EDWIN E. *Full Professor,*
PhD, 2002, Purdue University, United States.

TREMBLAY, RAYMOND L. *Full Professor*,
PhD, 1996, University of Puerto Rico, Puerto Rico.

VEGA BERMÚDEZ, ESTHER Z. *Full Professor,*
PhD, 1997, University of Puerto Rico, Puerto Rico.

VELÁZQUEZ OLIVERAS, IRIS M. *Associate Professor,*
PhD, 1998, University of New York, United States.

Physics and Electronics

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Objectives

The Department of Physics offers a two-year Associate Degree in Electronics Technology and Nanotechnology. This program targets students interested on quickly joining the labor force. In it, the students develop a positive attitude towards the analytical process which leads them to solve problems, as well as to expand their technological, scientific, and humanistic knowledge.

Also, the Department offers a Bachelor of Sciences with a major in Physics Applied to Electronics that integrates two aspects of knowledge: physics, which is the most fundamental of sciences; and electronics, which is a basis for industrial development. This program develops professionals able to perform creative and competent work, on physics and electronic fundaments as well as in their applications, and to collaborate in the design, manufacture, and quality control of products in electronics branch.

Furthermore, the Department offers a Minor in Astronomy, beneficial for those students attracted by the study of the universe most interesting physical phenomena, from our Solar System to the nature of the galaxies and the stars, black holes, and how the Universe became what it is. The Minor in Astronomy has three additional courses, three (3) credits each one (ATSR3001, ASTR3002, and ASTR3005), that should be completed parallel with the student's Bachelor requirements where he/she is officially registered.

Students may participate in observation projects of astronomy, nanotechnology, science of materials, medical physics, etc.

Academic Programs

The Department offers study programs leading to the following academic degrees:

Associate Degree in Electronics Technology and Nanotechnology. Graduates technicians in electronics with knowledge and skills on basic electronics, digital electronics, controls and instrumentation, and nanotechnology.

This Program is accredited by the ABET Engineering Technology Accreditation Commission (www.abet.org).

Graduates of the Associate Degree in Electronics Technology and Nanotechnology are expected to attain the following Program Educational Objectives within a few years of graduation:

1. *Demonstrate professional growth and competence, acquire new skills, and seek out leadership positions in technical areas related to electronics and/or nanotechnology.*
2. *Apply professional experience to solve technical and societal problems with creativity, responsibility, and confidence, promoting high standards and ethical values.*
3. *Respond effectively to technological advances in the profession, valuing innovation, professional improvement, and continuous education.*

Bachelor of Sciences with major in Physics Applied to Electronics. Prepares professional physicists with knowledge and skills in the area of electronics. The graduates collaborate on design, production, and quality control in industries that produce electronic equipment.

ASSOCIATE DEGREE IN ELECTRONICS TECHNOLOGY AND NANOTECHNOLOGY

(For students admitted before the first semester 2024-2025)

Curricular Sequence

Summary of credits:

General Education credits.....32
Core course.....36
Total.....68

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3101	Basic English I	3
ESPA3101	Basic Spanish I	3
MATE1031	Fundamentals of Technical Mathematics I	4
FISI1031	Physics for Technology I	3
FISI1033	Laboratory of Physics for Technology I	1
PSIC1006	Human Relations in the Industry	3
	Total	17

FIRST YEAR – SECOND SEMESSTER

Code	Course	Crs.
INGL3102	Basic English II	3
ESPA3102	Basic Spanish II	3
MATE1032	Fundamentals of Technical Mathematics II	4
FISI1032	Physics for Technology II	3
FISI1034	Laboratory of Physics for Technology II	1
TEEL1021	Alternate Current Circuits	3
TEEL1022	Laboratory of Alternate Current Circuits	1
	Total	18

SUMMER

Code	Course	Crs.
TEEL2015	Practice in Industry	2
	Total	2

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
TEEL2031	Basic Electronics I	3
TEEL2032	Laboratory of Basic Electronics I	1
TEEL2111	Digital Electronics	3
TEEL2112	Laboratory of Digital Electronics	1
TEEL2007	Introduction to Computer Programming	3
TEEL2019	Introduction to Quality Control	3
TEEL2009	Technical Report Writing	2
	Total	16

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
TEEL2041	Basic Electronics II	3
TEEL2042	Laboratory of Basic Electronics II	1
TEEL2121	Microprocessors and Microcomputers	3
TEEL2122	Laboratory of Microprocessors and Microcomputers	1
HIST3245	History of Puerto Rico – Compendium	3
TEEL2131	Industrial Nanotechnology	3
TEEL2132	Laboratory of Industrial Nanotechnology	1
	Total	15

ASSOCIATE DEGREE IN ELECTRONICS TECHNOLOGY AND NANOTECHNOLOGY

(For students admitted from the first semester 2024-2025)

Curricular Sequence

Summary of credits:

General Education credits……..29

Core course…….34

Total……..63

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
MATE1031	Fundamentals of Technical Mathematics I	4
FISI1031	Physics for Technology I	3
FISI1033	Laboratory of Physics for Technology I	1
TEEL1021	Alternate Current Circuits	3
TEEL1022	Laboratory of Alternate Current Circuits	1
TEEL2019	Introduction to Quality Control	3
	Total	15

FIRST YEAR – SECOND SEMESSTER

Code	Course	Crs.
MATE1032	Fundamentals of Technical Mathematics II	4
FISI1032	Physics for Technology II	3
FISI1034	Laboratory of Physics for Technology II	1
TEEL2031	Basic Electronics I	3
TEEL2032	Laboratory of Basic Electronics I	1
TEEL2007	Introduction to Computer Programming	3
	Total	15

SUMMER

Code	Course	Crs.
TEEL2015	Practice in Industry	2
	Total	2

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3101	Basic English I	3
ESPA3101	Basic Spanish I	3
TEEL2111	Digital Electronics	3
TEEL2112	Laboratory of Digital Electronics	1
TEEL2041	Basic Electronics II	3
TEEL2042	Laboratory of Basic Electronics II	1
	Total	14

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
INGL3102	Basic English II	3
ESPA3102	Basic Spanish II	3
TEEL2121	Microprocessors and Microcomputers	3
TEEL2122	Laboratory of Microprocessors and Microcomputers	1
HIST3245	History of Puerto Rico – Compendium	3
TEEL2131	Industrial Nanotechnology	3
TEEL2132	Laboratory of Industrial Nanotechnology	1
	Total	17

BACHELOR OF SCIENCES WITH MAJOR IN PHYSICS APPLIED TO ELECTRONICS

(for students admited before the first semester 2023-2024)

Curricular Sequence

Summary of credits:

General Education courses.....77
Core courses.....44
Recommended electives.....12
Total.....133

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
HUMA3021	Cultural Manifestations of the Western Man I	3
MATE3171	Pre-Calculus I **or**	3
MATE3018	*Pre-Calculus and Analytical Geometry (4crs.)*	
BIOL3011	General Biology I	4
BIOL3013	Laboratory of General Biology I	0
FISI4171	Seminar I	1
	Total	17

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
HUMA3022	Cultural Manifestations of the Western Man II	3
MATE3172	Pre-Calculus II	3
BIOL3012	General Biology II	4
BIOL3014	Laboratory of General Biology II	0
FISI4172	Seminar II	1
	Total	17

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
CISO3121	Introduction to Social Sciences I	3
HIST3245	History of Puerto Rico – Compendium	3
MATE3061	Calculus I	4
FISI3011	University Physics I	3
FISI3013	Laboratory of University Physics I	1
QUIM3001	General Chemistry I	4
QUIM3003	Laboratory of General Chemistry I	0
	Total	18

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
CISO3122	Introduction to Social Sciences II	3
MATE3062	Calculus II	4
FISI3012	University Physics II	3
FISI3014	Laboratory of University Physics II	1
QUIM3002	General Chemistry II	4
QUIM3004	Laboratory of General Chemistry II	0
FISI3135	Electrical Circuits	3
	Total	18

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
MATE4115	Applied Analysis for Students of Physics	4
FISI4057	Thermodynamics and Statistical Mechanics	3
FISI4051	Intermedia Mechanics I	3
FISI3141	Electronics I	3
FISI3143	Laboratory of Electronics I	1
	Elective	2
	Total	16

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
MATE3009	Introduction to Programming and Numerical Analysis I	3
FISI3016	Modern Physics	3
FISI4068	Electromagnetism	3
FISI3142	Electronics II	3
FISI3144	Laboratory of Electronics II	1
	Elective	2
	Total	15

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3201	Introduction to Literature Genre I	3
INGL3201	Grammar, Composition and Analytical Reading I	3
FISI4085	Quantic Physics	3
FISI4175	Microprocessors	3
FISI4176	Laboratory of Microprocessors	1
FISI4191	Intermediate Laboratory I	1
	Elective	3
	Total	17

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3202	Introduction to Literature Genre II	3
INGL3202	Grammar, Composition and Analytical Reading II	3
FISI4087	Industrial Electronic Instrumentation	3
FISI4088	Laboratory of Industrial Electronic Instrumentation	1
FISI4192	Intermediate Laboratory II	1
FISI3046	Mathematical Physics	3
XXXX	Elective	3
	Total	17

**** For students admitted in and after August 2019, FILO4031/FILO4471 will be substituted by FISI3046 (Mathematical Physics – 3 credits). If all students to be enrolled in those courses agree, one of them could be substituted by FISI3046.*

**** For students admitted in the academic year 2021-2022, FISI3046 substitutes MATE4115.*

***** The total credits are 133 instead of 135, apart from the 6 credits of MATE3171 and MATE172, only 4 are required by the Program.*

BACHELOR OF SCIENCES WITH MAJOR IN PHYSICS APPLIED TO ELECTRONICS

(for students admitted from the first semester 2023-2024)

Curricular Sequence

Summary of credits:

General education courses……72
Core courses……47
Recommended electives ……12
Total……131

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
FISI3011	University Physics I	3
FISI3013	Laboratory of University Physics I	1
	Elective – Seminar I (FISI4171)	2
MATE3171	Pre-Calculus I	3
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
	Total	15

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
FISI3012	University Physics II	3
FISI3014	Laboratory of University Physics II	1
	Elective – Seminar II (FISI4172)	2
MATE3172	Pre-Calculus II	3
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
	Total	15

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
FISI3046	Mathematical Physics	3
MATE3061	Calculus I	4
QUIM3001	General Chemistry I	4
QUIM3003	Laboratory of General Chemistry I	0
HUMA3021	Cultural Manifestations of Western Man I	3
ESPA3201	Introduction to Literature Genre I	3
	Total	17

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
FISI3135	Electrical Circuits	3
MATE3062	Calculus II	4
QUIM3002	General Chemistry II	4
QUIM3004	Laboratory of General Chemistry II	0
HUMA3022	Cultural Manifestations of Western Man II	3
ESPA3202	Introduction to Literature Genre II	3
	Total	17

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
FISI3141	Electronics I	3
FISI3143	Laboratory of Electronics I	1
FISI4057	Thermodynamics and Statistical Mechanics	3
FISI4051	Intermediate Mechanics I	3
FISI3016	Modern Physics	3
INGL3201	Grammar, Composition and Analytical Reading I	3
	Elective	2
	Total	18

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
FISI3142	Electronics II	3
FISI3144	Laboratory of Electronics II	1
FISI4085	Quantum Physics	3
FISI4068	Electromagnetism	3
MATE3009	Introduction to Programming and Numerical Analysis I	3
INGL3202	Grammar, Composition and Analytical Reading II	3
	Elective	2
	Total	18

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
FISI4175	Microprocessors	3
FISI4176	Laboratory of Microprocessors	1
FISI4191	Intermediate Laboratory I	1
CISO3121	Introduction to Social Sciences I	3
BIOL3011	General Biology I	4
BIOL3013	Laboratory of General Biology I	0
	Elective	2
	Total	14

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
FISI4087	Industrial Electric Instrumentation	3
FISI4088	Laboratory of Industrial Electric Instrumentation	1
FISI4192	Intermediate Laboratory II	1
CISO3122	Introduction to Social Sciences II	3
BIOL3012	General Biology II	4
BIOL3014	Laboratory of General Biology II	0
HIST3245	History of Puerto Rico – Compendium	3
	Elective	2
	Total	17

COURSE DESCRIPTIONS

ASTR-3001. ELEMENTARY ASTRONOMY I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Presents the most important theories and concepts of Astronomy, from its beginnings to the present. Some of the theories will be analyzed in a socio economic and cultural context. A mathematical language, not beyond elementary algebra, will be used. The development of critical thinking and basic reasoning

skills that can serve a better academic achievement in other university courses and as an autonomous learner will also be stimulated. The course will be offered on onsite, hybrid or online modalities.

ASTR-3002. ELEMENTARY ASTRONOMY II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ASTR-3001. Corequisite(s): None. Astrophysical observations and theories about the sun, stars, and galaxies are presented without using mathematics beyond elementary algebra. Includes the study of quasars, the "Big Bang" model, and life in the cosmos. Throughout the course, emphasis is placed on scientific contributions that impact society. The course can be offered on-site, hybrid or online modalities.

ASTR-3005. FUNDAMENTS OF ASTRONOMY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ASTR3001, ASTR3002. Corequisite(s): None. This course is designed to provide a general introduction to astronomy at a more advanced level. It covers a wide variety of topics, including: the coordinate systems of the sky, instrumentation in astronomy, the nature of light, the Solar System, the evolution of stars, galaxies, and cosmology. The course can be offered on-site, hybrid or online modalities.

ASTR-4006. PHYSICAL ASTRONOMY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI 3016. Corequisite(s): None. Theoretical research of the physical processes in astronomical systems, such as position and magnitude of the stars. Also, studies binary and variable stars, radiation, structure and evolution of stars, interstellar matter, galaxies, and cosmology aspects.

CIFI-3001. INTRODUCTION TO PHYSICAL SCIENCES I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Presents to the student a general view of the historical and philosophical evolution of physical sciences. The purpose is to introduce sciences, not as a static collection of facts and formulas but, as an organic body of concepts that are in continuous development. A brief discussion of the astronomy evolution leads from the Aristotelian universe to the Newtonian. Examines the movement theories, universal gravitation, and the principles of conservation. The course can be offered on-site, hybrid or online modalities.

CIFI 3002. INTRODUCTION TO PHYSICAL SCIENCES II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): CIFI 3001. Corequisite(S): None. Studies, from the concept evolution point of view, the electricity and magnetism theories, the development of the atomic hypothesis of matter, and those fundamental ideas of modern physics that turns it into a cultural dominant factor of our century. The course can be offered on-site, hybrid or online modalities.

FISI-1031. PHYSICS FOR TECHNOLOGY I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): FISI 1033. This course presents an introduction to fundamental concepts of mechanics and thermodynamics. Study topics include statics, kinematics, dynamics, work and energy, conservation laws, temperature, heat, and thermodynamic laws. The course can be offered on-site, hybrid or online modalities.

FISI-1032. PHYSICS FOR TECHNOLOGY II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI 1031, FISI 1033. Corequisite(s): FISI 1034. This course presents an introduction to concepts of electrostatics, magnetism, and optics. Emphasis will be given to the study of electrical circuits. The course can be offered on-site, hybrid or online modalities.

FISI-1033. LABORATORY OF PHYSICS FOR TECHNOLOGY I. Credit: 1. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): FISI 1031. This course presents a selection of experiments on statics, kinematics, dynamics, work and energy, laws of conservation, temperature, heat, and thermodynamic laws. The course can be offered on-site, hybrid or online modalities.

FISI-1034. LABORATORY OF PHYSICS FOR TECHNOLOGY II. Credit: 1. Laboratory hours per week: 3. Prerequisite(s): FISI 1031, FISI 1033. Corequisite(s): FISI 1032. This course presents a selection of experiments on electrostatics, magnetisms, and optics, with emphasis on electrical measures. The course can be offered on-site, hybrid or online modalities.

FISI-3011. UNIVERSITY PHYSICS I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE 3018 or MATE 3172. Corequisite(s): FISI 3013 and MATE 3061. Introductory course to physics as a fundamental science. Offers a unified view of it, emphasizing conservation principles, concepts of fields and waves, and the atomic matter point of view. The first semester covers kinematics, dynamics of a particle, energy, and oscillating movement. Also, the dynamic of a system of particles and gravitational field. The course can be offered on-site, hybrid or online modalities.

FISI-3012. UNIVERSITY PHYSICS II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI 3011 and FISI 3013. Corequisite(s): FISI 3014. This course is dedicated to the study of electrostatics, electromagnetism, electromagnetic waves and light, and some fundamental principles of modern physics and matter structure. The course can be offered on-site, hybrid or online modalities.

FISI-3013. LABORATORY OF UNIVERSITY PHYSICS I. Credit: 1. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): FISI3011. This course complements the student's knowledge that was acquired in class. Consist of a series of experiments intended to verify the

laws of mechanics and thermodynamics. The course can be offered on-site, hybrid or online modalities.

FISI-3014. LABORATORY OF UNIVERSITY PHYSICS II. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): FISI3011 and FISI3013. Corequisite(s): FISI3012. This course will complement the knowledge acquired by the students in class. It consists of a series of experiments focused on verifying the laws of electromagnetism, light and modern physics. The course can be offered on-site, hybrid or online modalities.

FISI-3016. MODERN PHYSICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI3012. Corequisite(s): None. The students are exposed to this century's physics. Includes: relativity elements, fundaments of quantic mechanics, and atomic and molecular physics. Also, atom's structure and notions of atomic and molecular spectroscopy. The course can be offered on-site, hybrid or online modalities.

FISI-3046. MATHEMATICAL PHYSICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Includes a topic selection, such as matrix vector analysis, partial differential equations, special functions, series, and Fourier integral, transformed into Laplace. The course can be offered on-site, hybrid or online modalities.

FISI-3135. ELECTRICAL CIRCUITS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI 3011. Corequisite(s): FISI 3012. Basic concepts of linear electrical circuits. Methods for solving electrical grids. Analysis of grids in steady state. Transitory effects. Introduction to Laplace, Fourier, and Bode techniques. The course can be offered on-site, hybrid or online modalities.

FISI-3141. ELECTRONICS I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI 3135. Corequisite(s): FISI 3143. Rigorous analysis of modern electronics on which discrete components are studied, although gives more importance to digital circuits. Studies the characteristics and functioning of semiconductor devices and focuses on the study of logic circuits, combinatorial and sequential, and of integrated circuits at a medium (msi) and large scale (lsi). The course can be offered on-site, hybrid or online modalities.

FISI-3142. ELECTRONICS II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI 3141 and FISI 3143. Corequisite(s): FISI 3144. Analysis of electronic analog circuits, includes circuits with diodes and bipolar and field-effect transistors. Concepts of amplification, feedback, and response of frequency, are used. Introduces the operative amplifier and its applications. Studies signal generators and electronic potency circuits. The course can be offered on-site, hybrid or online modalities.

FISI-3143. LABORATORY OF ELECTRONICS I. Credit: 1. Laboratory hours per week: 3. Prerequisite(s): FISI 3135. Corequisite(s): FISI 3141. Construction of electronic circuits discussed in class. Relevant measures are taken. Emphasis is given to the use of commercial devices and the use of guidebooks and specifications sheets. The course can be offered on-site, hybrid or online modalities.

FISI-3144. LABORATORY OF ELECTRONICS II. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): FISI 3141 and FISI 3143. Corequisite(s): FISI 3142. Measurements at the point of operation of amplifiers with transistors. Frequency gain and response measurements are made. Construction of circuits with integrated operational amplifiers. The course can be offered on-site, hybrid or online modalities.

FISI-3171. PHYSICS I. Credits: 4. Lecture hours per week: 4. Prerequisite(s): MATE 3061. Corequisite(s): None. Principles of mechanics, waves, and optics for engineering and sciences.

FISI-3172. PHYSICS II. Credits: 4. Lecture hours per week: 4. Prerequisite(s): FISI 3171 and MATE 3062. Corequisite(s). None. Principles of electricity, magnetism, optics, and modern physics for engineers and physical sciences.

FISI-3173. LABORATORY PHYSICS I. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): FISI 3171. Experiments of mechanics, waves, and optics to understand the course Physics I.

FISI-3174. LABORATORY OF PHYSICS II. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): FISI 3173. Corequisite(s): FISI 3172. Experiments of electricity, magnetism, and modern physics as complement of the course Physics II.

FISI-4047. INTRODUCTION TO SOLID STATE PHYSICS I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI 3016, MATE3062. Corequisite(s): None. Study of the solid-state structure: crystalline structures, reciprocal reticulate, crystals diffraction, phonons, fermi gas, and energy bands. Also, the student will get familiarized with the semiconductor's theory and dielectric and magnetic solid properties.

FISI-4051. INTERMEDIATE MECHANICS I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI3012. Corequisite(s): None. This course presents an introduction to the fundamental concepts of classical mechanics. Concepts include: oscillations, gravitation, Hamilton's principle, and Lagrangian and Hamiltonian dynamics. The course can be offered on-site, hybrid or online modalities.

FISI-4057. THERMODYNAMICS AND STATISTICAL MECHANICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI3012. Corequisite(s): None. Presents

an introduction to the fundamental concepts of thermodynamics and statistical mechanics. Topics studied include temperature, first and second law of thermodynamics, kinetic theory of gases, and Maxwell-Boltzmann statistics. The course is aimed at undergraduate students in Physics at the intermediate level. The course can be offered on-site, hybrid or online modalities.

FISI-4068. ELECTROMAGNETISM. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI3012. Corequisite(s): None. This course includes concepts of electrostatics, magnetostatics, electrodynamics, and Maxwell's laws. Includes vector calculus analysis, definitions of gradient, divergence, and rotation. Also, includes the divergence and rotation theorems. The student is familiarized with the fundamental theorems of electromagnetism. The content includes an elementary treatment of the theory of electromagnetic radiation. The course can be offered on-site, hybrid or online modalities.

FISI-4085. QUANTUM PHYSICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI3016. Corequisite(s): None. Introduces mathematical postulates and schemes of quantum mechanics. Defines the function of state, the operators, and their own values. Solves the equation of Schrodinger for different possibilities, including the oscillator and the hydrogen atom. The course can be offered on-site, hybrid or online modalities.

FISI-4087. INDUSTRIAL ELECTRIC INSTRUMENTATION. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI3142 and FISI3144. Corequisite(s): FISI4088. Studies of several electronic devices and circuits applied on the industry: silicone-controlled rectifier, thyristor, mono-union transistor, etc. Also, studies the electronic controls. The course can be offered on-site, hybrid or online modalities.

FISI-4088. LABORATORY OF INDUSTRIAL ELECTRIC INSTRUMENTATION. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): FISI 3142 and FISI 3144. Corequisite(s): FISI 4087. Studies the composition and functioning of electric and electronic measurement instruments. The course can be offered on-site, hybrid or online modalities.

FISI-4161. UNDERGRADUATE RESEARCH I. Credits: 2. Research work hours per week: 4. Prerequisite(s): FISI 3012 and MATE 3061. Corequisite(s): None. The student will work on an original problem of research under the mentorship of a faculty member. Bibliographical review of the field, experimental work, numerical computation, and data collection and analysis.

FISI-4162. UNDERGRADUATE RESEARCH II. Credits: 2. Research work hours per week: 4. Prerequisite(s): FISI 3012 and MATE 3061. Corequisite(s): None. The student will work on an original problem of research under the mentorship of a faculty member. Bibliographical review of the field, experimental work, numerical computation, and data collection and analysis.

FISI-4163. UNDERGRADUATE RESEARCH III. Credits: 2. Research work hours per week: 4. Prerequisite(s): FISI 3012 and MATE 3061. Corequisite(s): None. The student will work in an original problem of research under the mentorship of a faculty member. Bibliographical review of the field, experimental work, numerical computation, and data collection and analysis.

FISI-4164. UNDERGRADUATE RESEARCH IV. Credits: 2. Research work hours per week: 4. Prerequisite(s): MATE 3061. Corequisite(s): None. The student will work on an original problem of research under the mentorship of a faculty member. Bibliographical review of the field, experimental work, numerical computation, and data collection and analysis.

FISI-4165. UNDERGRADUATE RESEARCH V. Credits: 2. Research work hours per week: 4. Prerequisite(s): MATE 3061. Corequisite(s): None. The student will work in an original problem of research under the mentorship of a faculty member. Bibliographical review of the field, experimental work, numerical computation, and data collection and analysis.

FISI-4171. SEMINAR I. Credits: 1. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. Participation in seminars or videoconferences offered by several lecturers, who may be department professors, guest professors from industry or research centers, or other students from the course or program, invited by the professor responsible of the course. The course can be offered on-site, hybrid or online modalities.

FISI-4172. SEMINAR II. Credits: 1. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None Participation in seminars offered by several lecturers, who may be department professors, guest professors from industry or research centers, or other students from the course or program, invited by the professor responsible of the course. The course can be offered on-site, hybrid or online modalities.

FISI-4175. MICROPROCESSORS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): FISI 3142. Corequisite(s): FISI 4176. History of the microprocessor, their classification according to the characteristics, uses, and purpose: of real time, unreal time, of general purposes, or only one purpose. System for the communication with the external world, three buss configuration, data highway, interphases of intercommunication, internal architecture of at least three main microprocessors, flowcharts, general mnemonic language, programs coding, types of instructions, description of at least two codes of microprocessors, subroutines, main programs, and instruction modes. Memory maps, documentation,

programming, and applications. The course can be offered on-site, hybrid or online modalities.

FISI-4176. LABORATORY OF MICROPROCESSORS. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): FISI 3142. Corequisite(s): FISI 4175. This laboratory is of the bachelor level. In it, detailed experimental studies will be made on applications of microprocessors as a central unit and as part of a system that can communicate with the external world in their control uses of different usage and how they function in a complete system. Also, studies will be made of interphases and input and output sensors. The course can be offered on-site, hybrid or online modalities.

FISI-4191. INTERMEDIATE LABORATORY I. Credits: 1. Laboratory hours per week: 3. Prerequisites: FISI 3016. Corequisite(s): None. This is an intermediate level course in which detailed experimental studies will be made of certain phenomena that are basic to the discipline of physics. We start with the operation of a LASER. Electromagnetic radiation in the optical and microwave frequency band will be emphasized. The interaction of this radiation with matter and the phenomenon of diffraction and interference will be studied in depth. Also, will study the movement of coupled oscillators, standing waves, the mechanism of heat transport in materials and measurements of the speed of light in air. The course can be offered on-site, hybrid or online modalities.

FISI-4192. INTERMEDIATE LABORATORY II. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): FISI 4191. Corequisite(s): None. This is an intermediate level course in which detailed experimental studies will be made of certain phenomena that are basic to the discipline of physics. In particular, the experimental foundations of modern physics and nanotechnology will be emphasized, such as charge quantization, energy quantization, and polymer nanofiber fabrication and characterization. Simple and complex quantum systems will be analyzed by using the photoelectric effect and some properties of semiconductor polymers will be studied. Sophisticated instruments such as the atomic force microscope and the scanning electron microscope (SEM) will also be used. Electronic devices will be manufactured using organic polymers. The course can be offered on-site, hybrid or online modalities.

TEEL-1021. ALTERNATE CURRENT CIRCUITS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): TEEL1022. This course covers topics of basic electricity, including Ohm's law and laws and simplifications of circuits. Special emphasis is given to the operation of alternate current systems, with the complex numbers (phasors), impedance, reactance, and resonant circuits. Also, studies coupled circuits, transformers, and three-phase circuits. The course can be offered on-site, hybrid or online modalities.

TEEL-1022. LABORATORY OF ALTERNATE CURRENT CIRCUITS. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): TEEL1021. Teaching of the basic techniques for electrical measurements, in continuous and alternate currents. Measurements of voltage, currents, resistance, and power are carried out. Study topics include an introduction to the use of the oscilloscope, resonant circuits, and circuits with transformer. The course can be offered on onsite, hybrid or online modalities.

TEEL-2007. INTRODUCTION TO COMPUTER PROGRAMMING. Credits: 3. Lecture hours per week: 4. Prerequisite(s): None. Corequisite(s): None. This course presents a general view of computers, including the history, generations, and classifications. Concepts of digital, analog, and hybrid computers are taught, of real time, unreal time, of general purpose, and of only one purpose. Presents the characteristics of peripheral equipment and the different types of memories and their uses. Also, studies the basic machine language, mnemonic, and high-level languages. The course can be offered on-site, hybrid or online modalities.

TEEL-2009. TECHNICAL REPORT WRITING. Credits: 2. Lecture hours per week: 2. Prerequisite(s): INGL 3102. Corequisite(s): None. Presents practical aspects of organization, elaboration, and writing of reports. Readings, analysis, and interpretations of technical articles are made. Also, the techniques for correct technical report writing in the industry are studied, in Spanish and English. The course can be offered on-site, hybrid or online modalities.

TEEL-2015. PRACTICE IN INDUSTRY. Credits: 2. Practice hours per semester: 100. Prerequisite(s): TEEL1021, TEEL1022. Corequisite(s): None. The student completes a minimum of one hundred hours of work in the electronics industry, supervised by a faculty member and a member of the industry. The purpose of it is to allow the student to familiarize with its operation, to observe the application of some of the basic concepts studied during the first year, and also to relate with the work environment. The course can be offered on-site, hybrid or online modalities.

TEEL-2019. INTRODUCTION TO QUALITY CONTROL. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Presents the history and the quality control concept evaluation. Studies the quality control concepts in the modern industry, the International Organization for Standardization (ISO), and the quality improvement. Also, includes the fundaments of probability, sampling, reliability, and total quality. The course can be offered on-site, hybrid or online modalities.

TEEL-2031. BASIC ELECTRONICS I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TEEL1021, TEEL1022. Corequisite(s): TEEL2032. Presents the functioning

theory of semiconductor devices, including diodes, and bipolar and field effect transistors (BJT, FET, MOS). Also, analyzes the functioning in continuous and alternate currents of amplifying configuration, common base/"gate", common transmitter/"source" and common collector/"drain". The course can be offered on-site, hybrid or online modalities.

TEEL-2032. LABORATORY OF BASIC ELECTRONICS I. Credit: 1. Laboratory hours per week: 3. Prerequisite(s): TEEL 1021. TEEL 1022. Corequisite(s): TEEL 2031. In this course it is performed the assembling of circuits with semiconductor devices and measurements of the operation point and gain of current and voltage. Also, studies the specifications' sheets of the electronic components. The course can be offered on-site, hybrid or online modalities.

TEEL-2041. BASIC ELECTRONICS II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TEEL 2031, TEEL 2032. Corequisite(s): TEEL 2042. Studies circuits with semiconductor devices and integrated circuits, including amplifiers (response in frequency), power amplifiers, and operational amplifiers. Also, active filters, oscillators, power devices, voltage regulators, and analog-digital converters. The course can be offered on-site, hybrid or online modalities.

TEEL-2042. LABORATORY OF BASIC ELECTRONICS II. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): TEEL 2031, TEEL 2032. Corequisite(s): TEEL 2041. In this course it is performed the assembling and response measuring of frequency in amplifiers and the analysis of power amplifiers of A, B and A-B class. Circuits with operational amplifiers are analyzed, including inverting and non-inverting configurations, differential amplifiers, comparator circuits, differentiators, and integrators. Also, the assembling and analysis of active filters, oscillators, circuits with SCR and TRIAC, regulator circuits, and conversion circuits, of analog signal to digital signal and vice versa. The course can be offered on-site, hybrid or online modalities.

TEEL-2111. DIGITAL ELECTRONICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TEEL1021, TEEL1022. Corequisite(s): TEEL 2112. This course includes general concepts of numerical systems and Boolean algebra. Details the techniques for simplification, realization, and analysis of logical circuits (e.g.: Morgan's Theorem, Karnaugh's Map). Studies bi-stable, counters, registers, and integrated digital circuits' concepts that are most common in the industry. Also, presents the conversion techniques of analog signals to digital signals and vice versa. The course can be offered on-site, hybrid or online modalities.

TEEL-2112. LABORATORY OF DIGITAL ELECTRONICS. Credit: 1. Laboratory hours per week: 3. Prerequisite(s): TEEL 1021, TEEL 1022. Corequisite(s): TEEL 2111. This course conducts analysis of digital logical circuits in order to study their functioning and circuit applications, such as: multi-vibrators, counters, registers, and converters. The course can be offered on-site, hybrid or online modalities.

TEEL-2121. MICROPROCESSORS AND MICROCOMPUTERS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): TEEL 2111, TEEL 2112. Corequisite(s): TEEL 2122. This course presents an introduction to the architecture basic concepts of the most common microprocessors. Studies the techniques of memory structure, input, output, direction, and the set of instructions and programming in assembly language on practical applications. Also, offers an introduction to the basic concepts of Programmable Logic Controller (PLC), the analysis and synthesis of Ladder diagrams, and the use of programs for PLC. The course can be offered on-site, hybrid or online modalities.

TEEL-2122. LABORATORY OF MICROPROCESSORS AND MICROCOMPUTERS. Credit: 1. Laboratory hours per week: 3. Prerequisite(s): TEEL 2111, TEEL 2112. Corequisite(s): TEEL 2121. This course presents the methods of assembling and analysis of circuits that are essential for microcomputers and for the Programmable Logic Controller (PLC). Also, includes the interfaces of microprocessors and PLC, and related circuits to study practical systems and their applications. The course can be offered on-site, hybrid or online modalities.

TEEL-2131. INDUSTRIAL NANOTECHNOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): TEEL 2132. This course offers a general view of the nanotechnology field and its applications. Studies materials, processes, equipment, devices, characterization techniques, vacuum techniques and equipment, and procedures of hygiene and industrial safety for employees in the micro and nanotechnology industries and in other industries that make use of those technologies. Also, introduces the concept of micro and Nano electronic systems. The course can be offered on-site, hybrid or online modalities.

TEEL-2132. LABORATORY OF INDUSTRIAL NANOTECHNOLOGY. Credits: 1. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): TEEL 2131. This course offers a general view of experimental procedures used in micro and nanotechnology. Considers the cleaning, hygiene, and safety protocols used in the cleanroom when executing experiments. The experiments include the study of materials, processes, and characterization in micro and nanotechnology. Special emphasis is given to lithographic processes of micro and Nano patterns definition. The course can be offered on-site, hybrid or online modalities.

FACULTY

CAMACHO MARTÍNEZ, ALEX. *Full Professor,*
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Mathematics

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The ***Department of Mathematics*** (hereinafter referred to as *DM*) offers the Bachelor in Science in DATA SCIENCE program (hereinafter PBCD, by its Spanish acronym; Cert. 2021-2022-26 of the Governing Board). This bachelor's degree integrates a new area of specialization, Data Science, and is **unique** in its content, approach, and curriculum. In addition, the DM offers three Minor Concentration options available por all students of the university community:

- ***Minor in Actuarial Science*** (Cert. 2016-2017-086 of the UPRH Academic Senate)
- ***Minor in Data Science*** (Cert. 2022-2023-026 of the UPRH Academic Senate)
- ***Minor in Mathematics*** (Cert. 2022-2023-018 of the UPRH Academic Senate)

Bachelor in Science in Data Science Program

The Program has its pertinence in the natural, economic, and social sciences, in particular actuarial science, physical sciences, science of materials and computational chemistry, agricultural, biomedical sciences, economy, and demography. The professional skillset of the PBMC graduate proposed can be summarized in the following three basic components: preparation to apply an analytical model, application of mathematical models, and interpretation of results.

The PBCD will encourage in its students: independent study, participation in research, innovation, dissemination of knowledge, and their contribution to the development of the country. Also, will allow the graduates to apply the knowledge in mathematics, statistics, computational sciences, and data sciences in the solution of problems subject to analysis and to develop in their area.

The Program will provide the student with the following competencies:

- Knowledge of one or more areas of application.
- Basic formation on some areas of computational science (data management, networks, parallelism).
- Basic formation in mathematics and statistics.
- Perform based on scientific techniques: proof of hypothesis and validation of results.
- Component of automatic learning (machine learning), artificial intelligence, or algorithms of knowledge discovering (data mining).
- Skills of techniques to visualize data, not only in a user level, but also as developers in the production of applications.

Today, the availability of massive amounts of data makes essential to train students with data management and programming skills, such as: the development of graphical interfaces based on emerging trends in data visualization and communication, and the handling of large databases that are not necessary uniformly structured. According to Careercast.com, the profession of data scientist was ranked as the most in-demand job in the United States in 2019. In terms of need, exhaustive research has been made of the academic offerings within both the UPR System and private university systems. There is no bachelor in Data Science of similar disciplines in the UPR System.

BACHELOR OF SCIENCE IN DATA SCIENCE

Curricular Sequence

Summary of credits:

General education courses.....61
Core courses.....37
Specialized courses.....13
Closing or integrating experience.....4
Free electives.....12
Total.....127

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
MATE3171	Pre-Calculus I	3
COMP3081	Introduction to Programming and Computer Science I	3
COMP3083	Laboratory of Introduction to Programming and Computer Science I	1
INGL3101	Basic English I	3
ESPA3101	Basic Spanish I	3
HUMA3021	Cultural Manifestations of the Western Man I	3
	Total	16

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
MATE3172	Pre-Calculus II	3
COMP3082	Introduction to Programming and Computer Science II	3
COMP3084	Laboratory of Introduction to Programming and Computer Science II	1
INGL3102	Basic English II	3
ESPA3102	Basic Spanish II	3
HUMA3022	Cultural Manifestations of the Western Man II	3
	Total	16

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
MATE3061	Calculus I	4
MATE3050	Discrete Mathematics	3
CDAT3001	Data Visualization	
ESPA3201	Introduction to Literary Genres I	3
INGL3201	Grammar, Composition and Analytical Reading I	3
	Total	16

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
MATE4031	Linear Algebra	3
MATE3062	Calculus II	4
COMP4097	Data Structure and Algorithms	3
ESPA3202	Introduction to Literary Genres II	3
INGL3202	Grammar, Composition and Analytical Reading II	3
	Total	16

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
MATE3046	Probability	3
CDAT4001	Introduction to Data Science	3
CISO3121	Introduction to Social Sciences I	3
HIST3245	History of Puerto Rico – Compendium	3
XXXX	*FISI3011-3013 or QUIM3001-3003 or BIOL3101*	4
	Total	16

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
COMP4010	Design of Applications for the Web (WebApps) and Mobiles	3
ESMA3105	Mathematical Statistics	3
CISO3122	Introduction to Social Sciences II	3
COMP4098	File and Database Management	3
XXXX	*FISI3012-3014 or QUIM3002-3004 or BIOL3102*	4
	Total	16

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
CDAT4011	Automatic Learning	3
CDAT4013	Laboratory of Automatic Learning	1
MATE4061	Numerical Analysis	3
MATE4055	Undergraduate Research	2
XXXX	*FISI3011-3013 or QUIM3001-3003 or BIOL3101*	4
XXXX	Recommended elective	3
	Total	16

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
MATE4055	Undergraduate Research	2
XXXX	*FISI3012-3014 or QUIM3002-3004 or BIOL3102*	4
XXXX	Recommended elective	3
XXXX	Free elective	3
XXXX	Free elective	3
	Total	15

Minor Concentration in Actuarial Sciences:

Recognizing the need to prepare individuals capable of eventually performing in the actuarial field, and given the notable shortage of such professionals on the island, the DM designed the Minor in Actuarial Sciences (hereinafter CMCA, by its Spanish acronym). It consists of five courses, for a 15-credits total: Statistical Mathematics, Stochastic Models and Problems, Actuarial Science, Fundamentals of Financial Mathematics, and Risk Theory. Students who complete these courses receive a special notation in their academic transcript (the CMCA does not grant any professional certification, nor claims the right to do so). With this new option, students of the UPRH, as well as graduates from other universities and the external community in general, will have the opportunity to prepare themselves for two of the American Actuarial Association (SOA) certification exams. This offering began on January of 2013 and already has graduates working in the actuarial field with, at least one of the American Actuarial Association (SOA) exams passed.

Minor Concentration in Data Science:

The DM designed a Minor in Data Science (hereinafter CMCD) that allows students from different academic disciplines to integrate the skills developed in the CMCD into their field of study. The CMCD consists of 15 credits: Introduction to Programming and Computer Science, Laboratory of Introduction to Programming and Computer Science, Statistical Mathematics, Data Visualization, Introduction to Data Science, and the Undergraduate Research course. Upon completion of the CMCD, the student will have a solid understanding of statistical theory enabling them to perform exploratory analysis and modeling, and visualization of large amounts of data in order to communicate their analyzing data in an effective and attractive way. In addition, they will be well-prepared to undertake various undergraduate research projects, pursue graduate studies, or enter the professional workforce.

Minor Concentration in Mathematics

Today, science relies on interdisciplinary scientific work. The key tool that supports and connects the different areas of Science is mathematics. The Minor in Mathematics (hereinafter CMM) offered by our DM provides students with complementary training to enhance their primary field of study. The CMM consists of 12 to 15 credits (students select from a list of available

courses): Discrete Mathematics, Linear Algebra, Calculus II, Calculus III, Probability, Statistical Mathematics, Ordinary Differential Equations, Partial Differential Equations, and Mathematic Topics. Upon completion the CMM, students will be well-prepared to undertake undergraduate research, pursue graduate studies, or enter the professional workforce.

COURSE DESCRIPTIONS

CDAT-3001[1]. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMP3081, COMP3083 or similar courses with the previous authorization of the Mathematics Department Director. The student is introduced to the computational methodology of visualization of scientific data. The student will be able to handle data and select tools to visualize patterns in time, proportions, relations, differences, and spatial patterns. The student will learn the methodologies to develop the necessary tools for interactive visualization. Also, the student will be able to use these tools to construct and effectively communicate a narrative from the data. *Note: Involves laboratory use.*

CDAT-4001. INTRODUCTION TO DATA SCIENCE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMP3081, COMP3083 or similar courses with the previous authorization of the Mathematics Department Director. In this course, the student will learn the fundamentals of the discipline and will conduct the different steps of the data science process: data collection, cleaning, and processing on a high scale, exploratory analysis, modeling, visualization, and the creation of a data product. The course emphasizes giving a panoramic view of the discipline and how its parts are integrated in the practice. *Note: Involves laboratory use.*

CDAT-4011. MACHINE LEARNING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMP3082, ESMA3105 or similar courses with the previous authorization of the Mathematics Department Director. In this course, the student will have a panoramic approach of the discipline's fundaments, technics, and algorithms; and will familiarize, through practice with applications, with machine learning. The course content is divided based on the three types of learning that are considered in the discipline: supervised learning, non-supervised learning, and reinforcement learning.

CDAT-4013. MACHINE LEARNING LABORATORY. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): CDAT4011. This laboratory course complements the concepts learned in the course CDTA4011 – Machine Learning. Students will familiarize, through practice, with the different stages of Machine Learning and their application in real troubleshooting. They acquire knowledge and develop skills for the implementation and adaptation of Machine Learning algorithms applied to specific data sets. Also, they will get familiarized with the evaluation techniques of the models produced by the algorithms of Machine Learning. *Note: Involves laboratory use.*

COMP-3005. INTRODUCTION TO THE USE OF COMPUTERS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The course is oriented towards the exposition and practice of computer methods of access, collection, reproduction, relationship, graphic representation, data manipulation, and simulation of physical events. The student will be introduced to a programming environment, a data electronic sheet, a document processor, a database system, and several systems for accessing information through networks. The interface or intermediary environment perceived by users must be the most developed available, so that the operations can be as simple as possible, increasing the students' productivity and, therefore, allowing them to concentrate in solving problems and not on details of functioning of the particular system in use. *Note: Involves laboratory use.*

COMP-3081. INTRODUCTION TO PROGRAMMING AND COMPUTER SCIENCE I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Concept of algorithm, description of a computer system, basic structure of a program, variables and constants, value assignment, data, procedures and functions, control structures, compound statement, arrays, parameters, records, sets, and files.

COMP-3082. INTRODUCTION TO PROGRAMMING AND COMPUTER SCIENCE II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMP-3081. Corequisite(s): None. Stylistic guides, robustness, structured programming, methods of design for the programming implementation, program debugging and verification, how to read a program, efficiency considerations, pointers, recursion, some sorting algorithms, processing of character strings, lists, stacks, queues, binary trees, documentation, maintenance. The design and implementation of a program that has at least 500 lines is a course requirement.

COMP-3083. INTRODUCTION TO PROGRAMMING AND COMPUTER SCIENCE I LABORATORY. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): COMP3081 or a high-level language. This laboratory course complements the concepts obtained in the course COMP3081 – Introduction to Programming and Computer Science I. Students will acquire knowledge and develop skills in using tools to edit, document, structure, compile or interpret, and debug code, with text interface and with graphical programming environments that integrate all these tools. Also, students will get

[1] New course. Copyright reserved.

familiarized with the documentation of application programming interfaces (API) in both, language libraries and the publicly accessible to develop basic graphic interfaces and process text. The course introduces and puts into practice fundamental methods of software development. *Note: Involves laboratory use.*

COMP-3084. INTRODUCTION TO PROGRAMMING AND COMPUTER SCIENCE II LABORATORY. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): COMP3082 or a high-level language. This laboratory provides the students experiences that complement the theory presented in the course COMP3082 and develop application skills of its topics. They will manage files and data processing techniques are applied, such as integration, debugging, transformation, or reduction for analysis. The applications focus the file management on different formats and forms of access, and in revealing the meaning of their content. *Note: Involves laboratory use.*

COMP-4010. APPLICATION DESIGN FOR WEB (WEB APPS) AND MOBILES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMP-3081 or a high-level language. Corequisite(s): None. Knowing SQL is recommended, but not mandatory. In this course, students will be exposed to the technologies and programming languages most used today for the development of online applications (web apps) and mobile applications. Students will be introduced to the basics of hypertext programming using HTML (Hyper Text Markup Language) and CSS (Cascading Style Sheets) and their connection with technologies for the development of pages with dynamic content. Also, students will learn the basic elements of programming technologies from the client side (e.g., JavaScript-JS) and programming from the server side (e.g., PHP, Node, etc.) and their relationship with database management systems, with emphasis on data science.

COMP-4085. ASSEMBLY LANGUAGE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMP-3081 or a high-level programming language. Corequisite(s): None. The course explains the internal architecture of a computer, the functional interrelation and independence of the devices in it, as well as the logic structures that determine its behavior. Also, studies the set of instructions of a typical computer and the development of algorithms of moderate complexity, with emphasis in the development of routines that can be called from a high-level language. *Note: Includes laboratory.*

COMP-4096. OPERATING SYSTEMS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMP-4085. Corequisite(s): None. Fundamental concepts of operating systems, multiprogramming, virtual memory, memory management, degeneration, interruptions, architecture principles of assembly, of a compiler, and of an operating system. *Note: Includes laboratory.*

COMP-4097. DATA STRUCTURE AND ALGORITHMS. Credits: 3. Lecture hours per week: 4. Prerequisite(s): MATE-3050, COMP-3082. Corequisite(s): None. Basic data structure, such as lists, queues, stacks, and trees. Algorithms for the manipulation of these structures. Algorithms for data sorting and search. Analysis of algorithms. Management of the computer memory. Graphs and digraphs. *Note: Includes laboratory.*

COMP-4098. FILE AND DATABASE MANAGEMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMP-4097. Corequisite(s): None. Fundamental concepts and physical organization of a database. Architecture of a database system. Models. Design of logical databases. Database with a structure of hierarchy or relational network. Interrogative languages. Projects. *Note: Includes laboratory.*

COMP-4115. COMPUTER GRAPHICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMP-4097. Corequisite(s): MATE-4061, COMP-4116. Representation of primitive graphic objects: points, lines, polygons, solids. Transformations: translation, rotation, contraction/expansion reflections, and their matrix representations and homogeneous coordinates. Ray tracing, calculations of visible areas and shadows. Representation and generation of surface areas that use algebraic geometry. Spline curves, Bézier and data interpolation. Numerical stability of calculations. The laboratory experiences relevant to this course are offered in the course COMP-4116.

COMP-4116. LABORATORY OF COMPUTER GRAPHICS. Credits: 1. Laboratory hours per week: 3. Prerequisite(s): COMP-4097. Corequisite(s): MATE-4061, COMP-4115. This course studies the resources for printing or graphic displaying and storage and its formats. Skills are acquired in the use of standard packages for programming with computer graphics, as *Open GL.* The course includes the realization of a programming project of computer animation. *Note: Includes laboratory.*

COMP-4119. TOPICS ON COMPUTER SCIENCES. Credits: 1. Lecture hours per week: 1. Prerequisite(s): None. Corequisite(s): None. Mini course on important current subjects on one of the following fields: operating systems, architecture of computer systems, computability, compilers.

ESMA-3105. STATISTICAL MATHEMATICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3046. Corequisite(s): None. Parametric statistical methods. Inferential statistics, central limit theorem, sampling, and probability. Point estimates, confidence intervals. Errors of type I and II. Hypothesis tests using Normal, Student-t, Chi-square, and Binomial distributions.

ESMA-3145. STOCHASTIC MODELS AND PROBLEMS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE3046, MATE4031. Corequisite(s): None. This course

introduces the student to the study of different types of stochastic processes which are broadly used in fields of natural sciences, finance, marketing, actuarial mathematics, and social sciences. It discusses the basic theory and statistical aspects of Markov strings, discrete and continuous, Brownian movement and its generalizations, and Martingale theory. The course ends with an introduction to stochastic calculus, in particular the integration rules and differential equations.

MAAC-3001. ACTUARIAL SCIENCE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3046. Corequisite(s): None. Provides the student a general view of actuarial science and insurance systems designed to minimize the adverse financial impact of certain types of aleatory events. This impact reduction depends on premium rates and on financial reserves to respond to claims. From this, the student is shown how the determination of these rates and reserves are made based in the collection and systematic analysis of data and in the types of benefits.

MAAC-3002. FUNDAMENTS OF FINANCIAL MATHEMATICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3061 or its equivalent. Corequisite(s): None. The course is relevant for students aspiring to a career as actuaries in the insurance industry. In it, the student is introduced to calculus associated with the temporal value of money. Today's financial instruments have different values at different times; their values depend on interest rates and on time. For this, it is essential for an actuary to understand the compound interest notions, interest rates and discount, present value, time and interest determination, calculation of annuities, perpetuities, continuous and variant annuities, on payment frequencies and of interest conversion, determination of yield and reinversion rates, amortization tables, securities analysis, and sales-purchase of bonds and shares.

MAAC-4001. RISK THEORY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): ESMA3145. Corequisite(s): None. The quantification of risk is the essence of the actuarial activity. Risk management is what allows the insurance industry to provide alternatives to mitigate the negative impact of contingent and, probably harmful, events. This course strongly depends on the student to master concepts of probability and of stochastic processes. Through it, students will learn to work classic models of risk and will apply them to interest problems in the insurance industry. The course presents students the frequency models of claims made to the insurer, models of aggregated claims, models of long-term risk, and survival models.

MATE-0026. FUNDAMENTS OF UNIVERSITY MATHEMATICS. Credits: 0. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The course is designed for students whose performance in the Mathematics section of the university' admission exam does not allow him/her to enroll in the corresponding course (See current certification #2017-2018-052 of the Academic Senate). This course allows the student to adapt his/her skills to university level. In it, students will develop skills of arithmetic, algebra, and problem solving as essential elements to substantially improve the reasoning and apply the knowledge. *Note: Is a requisite for students admitted to the bachelor programs of Natural Sciences in the University of Puerto Rico at Humacao who have obtained 604 or less in the Mathematic section of the CEEB.*

MATE-1005. ELEMENTARY TECHNICAL MATHEMATICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Set notions. Real numbers system. Operations with fractions, decimals, and percentages. Simple linear equations. Ratios and proportions. Measurement systems: metric, English, apothecary, and domestic: applications in mixing of solutions and medications. Graphics and statistics notions.

MATE-1007. MATHEMATICS FOR ELECTRONICS TECHNOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3018 or MATE-3172. Corequisite(s): None. Theory of equations, complex numbers, analytical geometry notions, polar coordinates, and series. Introduction to differential and integral calculus in one-variable functions and some of its applications. Introduction to the empirical adjustment of curves.

MATE-1011. INTRODUCTORY MATEMATICS I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): See Note. Corequisite(s): None. Real numbers system, exponents, and radicals. Algebraic expressions, polynomials, and rational expressions. Linear and quadratic equations and inequalities. Polynomial and trigonometric functions. Graphics. *Note: 550 points or more in the CEEB Achievement Test or MATE-3001.*

MATE-1012. INTRODUCTORY MATHEMATICS II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-1011. Corequisite(s): None. Exponential and logarithmic functions. System of linear equations. Binomial theorem. Series. Theory of equations with a degree greater than two. Complex numbers and elementary analytical geometry.

MATE-1031. FUNDAMENTALS OF TECHNICAL MATHEMATICS I. Credits: 4. Lecture hours per week: 4. Prerequisite(s): None. Corequisite(s): None. This course develops the basic mathematical concepts and skills for differential and integral calculus. Also, the student will be exposed to different activities with the objective of improving his/her quantitative reasoning and ability to apply mathematical language and symbolism to his/her area of study. Will study the real numbers set, polynomials, rational expressions of polynomials, linear

equations, quadratic equations, linear equations systems, basic theory of functions, exponential functions, and logarithmic functions. Emphasis is given to the use of available technology (e.g.: graphic calculator. Computers, etc.) or mathematical software to conduct calculations, evaluate functions, approximate solutions of equations, and particularly, to explore, encourage, and analyze mathematical concepts from a graphical point of view.

MATE-1032. FUNDAMENTALS OF TECHNICAL MATHEMATICS II. Credits: 4. Lecture hours per week: 4. Prerequisite(s): MATE 1031. Corequisite(s): None. In this course, students of technology programs work with notions of geometry, trigonometric functions, analytical trigonometry, elements of differential and integral calculus of one-variable functions, and some of their applications. Most part of the content in this course attends fundamental concepts of differential and integral calculus. Like in the first course of this sequence, emphasis is given to the use of technology or mathematical software to conduct calculations, evaluate functions, approximate solutions to equations, and particularly, explore, encourage, and analyze mathematical concepts from a graphical point of view. The purpose of using technology is to complement and sustain the concepts presented in the course. The use of technology in the course's teaching-learning process, under any circumstances, denies the basic principle of it being a help, only if all concepts are known at first.

MATE-3001. ELEMENTARY MATHEMATICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Sets. Numbers systems, exponents, and radicals. Polynomials and rational expressions. Simple functions and their graphics. Linear and quadratic expressions, systems of linear equations. Linear inequalities. *Note: Is a requisite for students admitted to the Faculty of Business Administration in the University of Puerto Rico at Humacao who have obtained 564 or less in the Mathematic section of the CEEB.*

MATE-3008. MATHEMATICS FOR SOCIAL SCIENCES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Notions of sets; real numbers system; fractions and decimals; percentages and applications; theory of linear and quadratic equations and inequalities; systems of linear equations; functions (linear and quadratics), graphics and applications; basic principle of counting; analysis of survey's data; permutations and combinations; and elements of probability and descriptive statistics.

MATE-3009. INTRODUCTION TO PROGRAMMING AND NUMERICAL ANALYSIS I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3061. Corequisite(s): None. High-level language, "*input*" and "*output*" operations. Control of instructions. Constants and variables, decision, and control. Cycles, formats, vectors, and matrixes. Subprograms, character strings, logical values, complex values. Extended precision. Applications to Numerical Analysis. *Note: Includes laboratory.*

MATE-3015. ELEMENTARY STATISTICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3061. Corequisite(s): None. Frequency distributions. Graphics. Sampling descriptive measurements, probability, expected value, binomial and normal distributions. Predictions and simple correlation.

MATE-3018. PRE-CALCULUS AND ANALYTICAL GEOMETRY. Credits: 4. Lecture hours per week: 5. Prerequisite(s): See Note. Corequisite(s): None. Study of the concepts of functions, graphics of polynomial, exponential, logarithmic, and trigonometric functions. Inverse function. Complex numbers, theory of equations, system of equations, inequalities. *Note: 1,400 points or more on the mathematical achievement and mathematical aptitude sections of the CEEB; MATE-3001 or four points or more on the CEEB Mathematics Advanced Level I test.*

MATE-3041. INTRODUCTION TO MATHEMATICS I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Notions of sets, logic, axiomatic of algebra, real numbers systems, properties of operations, and of numbers, decimal numbers system and their graphic representation in the numeric line, equivalence relations, of equality and sorting.

MATE-3042. INTRODUCTION TO MATHEMATICS II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3041. Corequisite(s): None. Rational and irrational numbers, potencies, and roots. Polynomials, factorizations, rational expressions, equations and inequalities, and linear equations systems. Functions and graphics. Elements of intuitive geometry, congruencies, areas, volumes. Probability and normal distribution.

MATE-3046. PROBABILIY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): MATE-3062. Sample spaces and events, probability notion. Counting. Marginal and conditional probabilities, independence of events. Bayes theorem. Discrete aleatory variables, mass function. Expected value and variance. Common discrete distributions: Uniform, Binomial, Hyper-geometrical, Poisson, Geometrical, and others. Continuous aleatory variables: density and distribution functions. Continuous distributions: density and distribution functions. Common distributions: Uniform, Exponential, Normal, Normal-Logarithmical. Central limit theory. Momentum and generating functions. Multivariate distributions, marginal distributions. Covariance and correlations.

MATE-3050. DISCRETE MATHEMATICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3018 or MATE-3172. Corequisite(s): None. Theory of sets,

integers, divisibility, least common multiple and greatest common divisor, modular arithmetic, matrixes, prepositional logics, Boolean operations, graphs and matrixes, relations, and functions, counting techniques, trees, algorithms, groups and semigroups, monoids and finite state machines, colored trees.

MATE-3061. CALCULUS I. Credits: 4. Lecture hours per week: 4. Prerequisite(s): MATE-3018 or MATE-3172. Corequisite(s): None. Limits and continuity. Derivatives, rules of derivation, derivatives of algebraic, trigonometrical, exponential, and logarithmic functions. Maximums and minimums. Tracing of curves. Indefinite integral. Fundamental theorem of Calculus. Approximate integration: Trapezoidal and Simpson rules. Area between curves. *Note: Three lecture hours and one practice hour per week.*

MATE-3062. CALCULUS II. Credits: 4. Lecture hours per week: 4. Prerequisite(s): MATE-3061. Corequisite(s): None. Applications of definite integral: solids and surfaces of revolution, arch length. Derivatives and integrals of inverse trigonometric functions. Techniques of integration. Improper integrals and indeterminate forms. Conic sections and quadratic equations. Parametric equations. Calculus in polar coordinates. Numerical successions, infinite series, convergence criteria. Functions of several variables. Partial differentiation, maximums, and minimums. *Note: Three lecture hours and one practice hour per week.*

MATE-3063. CALCULUS III. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3062. Corequisite(s): None. Vector calculus, calculus of functions with several variables, and vector analysis. Partial differentiation, implicit functions. Lagrange multipliers. Spherical and cylindrical polar coordinates. Multiple integrals, line integrals. Vector fields. Theorems of Green, Stroke and Gauss, etc.

MATE-3071. COLLEGE ALGEBRA. Credits: 4. Lecture hours per week: 4. Prerequisite(s): None. Corequisite(s): None. Real numbers, exponents, radicals, and logarithms. Polynomials and rational expressions. Linear equations in one, two or three variables, linear inequalities in one variable. Relations and functions.

MATE-3076. THEORY OF COMPOUND INTEREST. Credits: 2. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. This is a course of calculus application to economy, finances, commerce, and banking economic activity. Discusses the dynamic relation of money value and the different financial tools regarding interest rates and time. The continuous applications are of theoretical importance and give the skills to understand the dynamic relations between money, time, and interest rates. The course is oriented toward students of mathematics pursuing an actuary career in the insurance industry and toward those candidates taking the certification exams of the Actuarial Association. The course includes the notion of compound interest, interest rates and discounts, present value, time, and interest determination. Calculations of annuities, perpetuities, and continuous annuities. Calculations of yield and reinversion rates. Amortization rates. Securities analysis and buying and selling of bonds.

MATE-3171. PRE-CALCULUS I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): Have 603[2] or more in the Mathematics section of the College Board Admission Test; or have approved (P) the course MATE0026; or have approved the course MATE3001 with a minimum of C; or an equivalent course. Corequisite(s): None. Absolute value, exponents and radicals, complex numbers, linear and quadratic equations, systems of equations. Inequalities. Functions and graphics. Polynomial and rational functions. Theorem of factor, of residue, and of rational zeros.

MATE-3172. PRE-CALCULUS II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3171. Corequisite(s): None. Exponential, logarithmic, trigonometric, and trigonometric inverse functions. Graphics. Trigonometric equations and identities. Triangle solutions, sine, and cosine laws. Binomial theorem. Successions.

MATE-3179. GEOMETRY FOR TEACHERS. Credits: 4. Lecture hours per week: 4. Prerequisite(s): MATE-3018 or MATE-3172. Corequisite(s): None. Axioms of Euclides and Birkhoff, study of the line and segments as geometrical objects. Angles measurements. Plane figures: triangles, polygons, and circles. Numerical relations among angles and triangle elements. Study of the angles defined in the circle. Geometric constructions with the use of rule and compass or with the use of the computer. Planes in space and dihedral angles. Concept of length, area, volume, and measure. More advanced geometry: theorem of Ceva and Menelao, Pappus and Desargues. Transformations: isometrics, reflections, translations, and rotations. Modern topics of geometry: floors with polygons or tessellations, symmetry groups, fractal structures. *Note: Three lecture hours and one laboratory hour per week.*

MATE-4009. ORDINARY DIFFERENTIAL EQUATIONS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3062. Corequisite(s): None. Ordinary differential equations of first and superior order, problems of initial value. Parameters variations, series solutions. Laplace transform. Differential equations systems, existence, and unicity theorems. Applications.

[2] This parameter was 650. The College Board admission test was changed, and an adjustment was made to this parameter.

MATE-4030. NUMBERS THEORY FOR TEACHERS. Credits: 3. Lecture hours per week: Prerequisite(s): MATE-3018 or MATE-3172. Corequisite(s): None. This course covers the basic notions of the number's theory in a classic undergraduate course and offers a view of modern applications to science and technology. Topics to be covered are natural numbers, numbering systems, divisibility, prime numbers, congruencies or modular arithmetic, Diophantine equations, continuous fractions, cryptography, classic problems.

MATE-4031. LINEAR ALGEBRA. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3061. Corequisite(s): None. Matrixes algebra. Linear systems, vector spaces, linear transformations, inner product, determinants, characteristic values and vectors, matrix diagonalization.

MATE-4055. UNDERGRADUATE RESEARCH. Credits: 2. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. The course will consist of a research topic in Mathematics or Computer Science assigned by the professor in charge. The topic will, generally, be part of a ampler project and the student will be evaluated according the volume and originality of his/her contribution. *Note: Requires authorization from the professor or program coordinator.*

MATE-4061. NUMERICAL ANALYSIS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3062, MATE-4031, COMP-3081 or MATE-3009. Corequisite(s): None. Numerical representation in the computer. Errors. Solutions to non-linear equations. Linear equations systems, interpolation, and approximations. Differentiation and numeric integration. The problem of characteristic values. Variation methods. *Note: Includes laboratory.*

MATE-4091. ABSTRACT ALGEBRA I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MATE-3050, MATE-4031. Corequisite(s): None. Sets. Studies and discussion of algebraic structures, such as Boole algebra, monoids, semigroups, groups, rings, bodies, and substructures related with the previously described. Applications in Mathematics, Electric Engineering, Computer Science, Statistics, and other areas.

MATE-4106. PROGRAMMING LANGUAGES. Credits: 3. Lecture hours per week: 3. Prerequisite(s): COMP-4097 and COMP-4085. Corequisite(s): None. Relation among programming languages and the machine architecture, structure of Algol type languages and interpretative languages, types of data provided by the language and their conversion, control structure, correction, and reliability of programs, modularization in different languages. Note: Includes laboratory.

MATE-4111. MATHEMATICAL ANALYSIS I. Credits: 4. Lecture hours per week: 5. Prerequisite(s): MATE-3062, MATE-3050. Corequisite(s): None. Real numbers. One-variable function: continuity and differentiability, Riemann integral for one-variable function. Infinite series. Uniform convergence. Fourier analysis.

MATE-4112. MATHEMATICAL ANALYSIS II. Credits: 4. Lecture hours per week: 5. Prerequisite(s): MATE-4111. Corequisite(s): None. Topology in Rm. Functions and transformations of several variables, differential calculus, theorems of implicit function and inverse function. Line and surface integrals.

MATE-4115. APPLIED ANALYSIS FOR STUDENTS OF PHYSICS. Credits: 4. Lecture hours per week: 4. Prerequisite(s): MATE-3062. Corequisite(s): None. Ordinary differential equations (ODE) of first and second order: physical applications. Theorems of existence and unicity. Linear transformations. Determinants. Homogeneous and non-homogeneous equations. Linear ODE with constant coefficients. Linear ODE with variable coefficients, parameter variation. Laplace transform. Characteristic values and vectors. Lineal ODE systems.

MATE-4117. TOPICS OF MATHEMATICS. Credits: 1. Lecture hours per week: 1. Prerequisite(s): Depends on the topic. Corequisite(s): None. Mini course in one of the following fields: Operative Research, Statistics, Analysis (real or complex), Applied Algebra, Topology.

MECU-3031. QUANTITATIVE METHODS FOR BUSINESS ADMINISTRATION I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): Have obtained 603[3] or more in the Mathematics section of the College Board Admission Test. Corequisite(s): None. Real numbers system, exponents, and radicals. Equations and inequalities. Functions and graphics: exponential and logarithmic functions, applications of logarithms. Theory of equations: matrixes and determinants. Progressions. Compound interest and annuities.

MECU-3032. QUANTITATIVE METHODS FOR BUSINESS ADMINISTRATION II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): MECU-3031. Corequisite(s): None. Introduction to differential and integral calculus functions in one variable. Limits, continuity, differentiation techniques, problems of maximums and minimums with applications to economy, integration of polynomial, exponential, and logarithmic functions.

[3] This parameter was 650. The College Board admission test was changed and an adjustment was made to this parameter.

FACULTY

MEDINA HUAMAN, OLLANTAY. *Associate Professor,*
PhD, 2014, University of Puerto Rico, Mayagüez, Puerto Rico.

NEGRÓN MARRERO, PABLO V. *Full Professor*,
PhD, 1985, University of Maryland, United States.

RAMOS COLÓN, ELIO. *Full Professor,*
PhD, 1997, George Mason University, United States.

RIVERA CRUZ, JOAQUÍN. *Assistant Professor,*
PhD, 2007, University of Iowa, United States.

RÍOS DÍAZ, IDALYN. *Associate Professor,*
MSc, 1991, University of Puerto Rico, Rio Piedras, Puerto Rico.

RUIZ TORRES, WILSON. *Associate Professor,*
MSc, 1987, University of Puerto Rico, Río Piedras, Puerto Rico.

SANTIAGO FIGUEROA, BÁRBARA L. *Full Professor,*
MSc, 1991, University of Puerto Rico, Rio Piedras, Puerto Rico.

SOTERO ESTEVA, JOSÉ O. *Full Professor,*
MS, 1993, Purdue University, United States.

Chemistry

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Objectives

The Department of Chemistry offers the Bachelor of Sciences with major in Industrial Chemistry, which is unique in the UPR System. Supervised practice in the industry is required. The curriculum allows to pursue graduate studies, provides the opportunity to acquire laboratory experiences in the chemical-pharmaceutical industry of the country, and surpasses class hours and laboratories requirements of the Chemistry profession regulatory law of Puerto Rico.

Also, offers a minimal background in the area of management or environmental chemistry. The laboratories have been designed to provide the basic training on analysis and synthesis techniques, as well as in instrumentation handling required from an industrial chemist.

Also, offers the Associate Degree in Chemical Technology, in which laboratory skills are developed in the area of instrumental analysis and organic chemistry, and is characterized by the intensive use of modern equipment to perform chemical analyses. This program includes a Supervised Practice in an industry allowing the student to familiarize with the work environment.

Academic Programs

The Department offers study programs leading to the following academic degrees: **Associate Degree in Chemical Technology.** Prepare technicians with skills in chemical analysis, control of industrial processes, and organic synthesis, using modern equipment intensively. The program includes courses of Introduction to Chemical Engineering, Supervised Practice in the Industry, and Unit Operations. **Bachelor of Sciences with major in Industrial Chemistry** (Unique Bachelor within the UPR System). Prepare professionals to work as chemists. Can perform functions of supervision or management in the areas of quality control, compliance, environmental control, and production. The curriculum provides all the requirements to take the examinations leading to the granting of the Chemists license in Puerto Rico.

ASSOCIATE DEGREE IN CHEMICAL TECHNOLOGY

Curricular Sequence

Summary of credits:

General Education courses.....32
Core course.....37
Total.....69

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
ESPA3101	Basic Spanish I	3
INGL3101	Basic English I	3
HIST3245	History of Puerto Rico – Compendium	3
MATE3171	Pre-Calculus I	3
TEQU1001	Integrated Chemistry I	5
TEQU1002	Laboratory of Integrated Chemistry I	0
	Total	17

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II	3
FISI1031	Physics for Technology I	3
FISI1033	Laboratory of Physics for Technology I	1
MATE3172	Pre-Calculus II	3
TEQU1003	Integrated Chemistry II	5
TEQU1004	Laboratory of Integrated Chemistry II	0
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
ECON3007	Principles of Economy	3
FISI1032	Physics for Technology II	3
FISI1034	Laboratory of Physics for Technology II	1
TEQU1012	Chemical Technology Seminar	1
TEQU2001	Integrated Chemistry III	5
TEQU2002	Laboratory of Integrated Chemistry III	0
TEQU2011	Chemical Processes	4
TEQU2012	Laboratory of Chemical Processes	0
	Total	17

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
QUIM3045	Technical and Bibliographical Report	3
TEQU2003	Integrated Chemistry IV	5
TEQU2004	Laboratory of Integrated Chemistry IV	0
TEQU2005	Introduction to Computers	3
TEQU2013	Unit Operations II	4
TEQU2014	Laboratory of Unit Operations II	0
	Total	15

SUMMER

Code	Course	Crs.
QUIM4053	Supervised Practice in the Industry	2
	Total	2

BACHELLOR OF SCIENCES WITH MAJOR IN INDUSTRIAL CHEMISTRY

Curricular Sequence

Summary of credits:

General Education courses.....42
Core courses.....39
Other requisites.....31
Recommended electives.....10
Free electives.....12
Total.....134

FIRST YEAR – FIRST SEMESTER

Code	Course	Crs.
INGL3101	Basic English I ***or***	3
INGL3103	*Intermediate English I*	
CISO3121	Introduction to Social Sciences I	3
ESPA3101	Basic Spanish I	3
MATE3171	Pre-Calculus I (3crs.) ***or***	4
MATE3172	*Pre-Calculus II (3crs.)*	
QUIM3001	General Chemistry I	4
QUIM3003	Laboratory of General Chemistry I	0
	Total	17

FIRST YEAR – SECOND SEMESTER

Code	Course	Crs.
CISO3122	Introduction to Social Sciences II	3
ESPA3102	Basic Spanish II	3
INGL3102	Basic English II ***or***	3
INGL3104	*Intermediate English II*	
MATE3061	Calculus I	4
QUIM3002	General Chemistry II	5
QUIM3004	Laboratory of General Chemistry II	0
	Total	18

SECOND YEAR – FIRST SEMESTER

Code	Course	Crs.
BIOL3011	General Biology I	4
BIOL3013	Laboratory of General Biology I	0
ESPA4231	Puerto Rican Literature I ***or***	3
ESPA4221	*Hispanic American Literature I* ***or***	
ESPA3201	*Introduction to Literary Genres I*	
INGL3201	Grammar, Composition and Analytical Reading I ***or***	3
INGL3221	*Introduction to Literature I*	
MATE3062	Calculus II	3
QUIM3031	Organic Chemistry I	4
QUIM3033	Laboratory of Organic Chemistry I	0
	Total	17

SECOND YEAR – SECOND SEMESTER

Code	Course	Crs.
BIOL3012	General Biology II	4
BIOL3014	Laboratory of General Biology II	0
ESPA4232	Puerto Rican Literature II ***or***	3
ESPA4222	*Hispanic American Literature II* ***or***	
ESPA3202	*Introduction to Literary Genres II*	
INGL3202	Grammar, Composition and Analytical Reading II ***or***	3
INGL3222	*Introduction to Literature II*	
MATE3039	Introduction to Computers ***or***	3
COMP3005	*Introduction to the Use of Computers*	
QUIM3032	Organic Chemistry II	4
QUIM3034	Laboratory of Organic Chemistry II	0
	Total	17

THIRD YEAR – FIRST SEMESTER

Code	Course	Crs.
FILO4031	Logic I ***or***	3
FILO4471	*Philosophy of Science I*	
FISI3011	University Physics I	3
FISI3013	Laboratory of University Physics I	1
HUMA3021	Cultural Manifestations of Western Man I	3
QUIM3025	Analytical Chemistry	4
QUIM3026	Laboratory of Analytical Chemistry	0
	Elective Industrial Chemistry (3 or 4 crs)	3
	Total	17

THIRD YEAR – SECOND SEMESTER

Code	Course	Crs.
FISI3012	University Physics II	3
FISI3014	Laboratory of University Physics II	1
HUMA3022	Cultural Manifestations of Western Man II	3
QUIM4000	Inorganic Chemistry	3
	Elective in Chemistry (2 or 3 crs)	3
	Elective in Industrial Chemistry (3 or 4 crs)	3
	Free elective	3
	Total	19

FOURTH YEAR – FIRST SEMESTER

Code	Course	Crs.
HIST3245	History of Puerto Rico – Compendium	3
QUIM4015	Instrumental Analysis	4
QUIM4016	Laboratory of Instrumental Analysis	0
QUIM4041	Physical Chemistry I	3
QUIM4051	Laboratory of Physical Chemistry I	2
	Free elective	3
	Total	15

FOURTH YEAR – SECOND SEMESTER

Code	Course	Crs.
QUIM4042	Physical Chemistry II	3
QUIM4052	Laboratory of Physical Chemistry II	2
QUIM4053	Supervised Practice in the Industry	2
	Elective in Chemistry (2 or 3 crs)	2
	Free electives	6
	Total	15

COURSE DESCRIPTIONS

QUIM-3001. GENERAL CHEMISTRY I. Credits: 4. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): QUIM-3003. Introduction to the concepts and laws of Chemistry. Study of the Periodic Table, simple chemical reactions, stoichiometry, atomic structure, bond, and calorimetry.

QUIM-3002. GENERAL CHEMISTRY II. Credits: 4. Lecture hours per week: 6. Prerequisite(s): QUIM-3001. Corequisite(s): QUIM-3004. Study of the states of matter-gas, solid, and liquid, -properties, of dissolutions, colligative properties, chemical equilibrium, kinetics, thermodynamics, and electrochemistry. *Note: Three lecture hours and three laboratory hours per week.*

QUIM-3003. LABORATORY OF GENERAL CHEMISTRY I. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): QUIM-3001. This laboratory complements studies from the course. Includes representative experiments of each main area studied in class, such as physical properties, stoichiometry, concentration, gases, and types of reactions. Emphasizes laboratory safety, development of experimental techniques, and in the gathering, analysis, and presentation of results.

QUIM-3004. LABORATORY OF GENERAL CHEMISTRY II. Credits: 0. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): QUIM-3002. This laboratory complements studies from the course. Includes representative experiments of each main area studied in class, such as colligative properties, chemical equilibrium, neutralization reactions and redox, electrochemistry, thermodynamics, and kinetics. Emphasizes laboratory safety, development of experimental techniques, and in the gathering, analysis, and presentation of results.

QUIM-3013. LABORATORY OF GENERAL AND ORGANIC CHEMISTRY, BIOLOGY AND BIOCHEMISTRY I. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): None. Corequisite(s): QUIM-3161. The content of this course applies to events related to health sciences and includes basic experiments of General and Organic Chemistry and Biochemistry relevant to health areas. *Note: For students enrolled in the Nursing Program.*

QUIM-3014. LABORATORY OF ORGANIC CHEMISTRY II AND BIOCHEMISTRY. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): QUIM-3161. Corequisite(s): QUIM-3162. Includes basic experiments of equilibrium, of Organic Chemistry and Biochemistry, applied to health and nutrition. *Note: For students enrolled in the Nursing Program.*

QUIM-3025. ANALYTICAL CHEMISTRY. Credits: 4. Lecture hours per week: 11. Prerequisite(s): QUIM-3002. Corequisite(s): QUIM-3026. Study of theories and methods for quantitative analysis using gravimetric and volumetric methods and includes potentiometric titrations. Brief introduction to spectrophotometric methods of analysis with emphasis in ultraviolet-visible region. The class emphasizes the fundamental theory of chemical analysis, relevant equilibriums, and computations of results. Also, studies limitations and possible errors on the more common analytical determinations, and on the interpretation of results obtained. *Note: Three lecture hours and four laboratory hours per week.*

QUIM-3026. LABORATORY OF ANALYTICAL CHEMISTRY. Credits: 0. Laboratory hours per week: 8. Prerequisite(s): QUIM-3002. Corequisite(s): QUIM-3025. Laboratory that complements the course of Analytical Chemistry. Develops practical skills in the area of quantitative analysis, with emphasis on analytical determination in unknown samples through gravimetric, volumetric, spectrophotometric, electrometric, and chromatographic techniques. Special attention to the statistical treatment of the data.

QUIM-3031. ORGANIC CHEMISTRY I. Credits: 4. Lecture hours per week: 7. Prerequisite(s): QUIM-3002. Corequisite(s): QUIM-3033. Study of the carbon compounds by functional groups based in the structure, properties, nomenclature, stereochemistry, synthesis, reactions, and mechanisms. Includes an introduction to infrared spectroscopy techniques, nuclear magnetic resonance, and mass spectrometry. *Note: Three lecture hours and four laboratory hours per week.*

QUIM-3032. ORGANIC CHEMISTRY II. Credits: 4. Lecture hours per week: 7. Prerequisite(s): QUIM-3031. Corequisite(s): QUIM-3034. Continuation of carbon compounds studies by functional groups based in structure, properties, nomenclature, stereochemistry, synthesis, reactions, and mechanisms. Includes an introduction to infrared spectroscopy techniques, nuclear magnetic resonance, and mass spectrometry. *Note: Three lecture hours and four laboratory hours per week.*

QUIM-3033. LABORATORY OF ORGANIC CHEMISTRY I. Credits: 0. Lecture hours per week: 4. Prerequisite(s): QUIM-3002. Corequisite(s): QUIM-3031. This is a four-hour per week laboratory that complements the course of Organic Chemistry I. Includes, among others, practice of the analysis, purification, identification, and synthesis methods of organic compounds.

QUIM-3034. LABORATORY OF ORGANIC CHEMISTRY II. Credits: 0. Lecture hours per week: 4. Prerequisite(s): QUIM-3031, QUIM-3033. Corequisite(s): QUIM-3032. This is a four-hour per week laboratory that complements the course of Organic Chemistry II. Includes, among others, an experimental study of several organic reactions and their mechanisms, qualitative analysis and identification of unknowns.

QUIM-3035. SPECTROMETRIC IDENTIFICATION OF ORGANIC COMPOUNDS. Credits: 2. Lecture hours per week: 2. Prerequisite(s): QUIM-3032. Corequisite(s): None. Studies the more common spectrometric methods used in the identification of organic and some organometallic compounds. It will discuss methods based on selective absorption of electromagnetic radiation by compounds. These methods are ultraviolet-visible and infrared spectroscopy, nuclear magnetic resonance, and mass spectrometry. Also, it will include the necessary theory to understand the relation between chemical structure and composition with spectrometric observation.

QUIM-3036. INTRODUCTION TO INDUSTRIAL CHEMISTRY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3032, QUIM-3025. Corequisite(s): None. Study of the chemical process fundaments of production and manufacture. It will be discussed aspects related with the characteristic of industrial chemistry; matter and energy balance; principles that govern the flow of fluids and heat; separation processes; kinetics, and aspects related with the financial analysis of a chemical process.

QUIM-3045. CHEMICAL AND BIBLIOGRAPHICAL REPORT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Aspects in chemical literature. Training in the use of references, oral and written communication, with emphasis on reports and bibliography in the chemical industry field.

QUIM-3161. INORGANIC AND ORGANIC CHEMISTRY. Credits: 4. Lecture hours per week: 6. Prerequisite(s): None. Corequisite(s): QUIM-3013. Interpretation of chemical phenomena in terms of the molecular structure; study of stoichiometry, chemical equilibrium, and the most important organic functions. *Note: Three lecture hours and three laboratory hours per week.*

QUIM-3162. ORGANIC CHEMISTRY II AND BIOCHEMISTRY. Credits: 4. Lecture hours per week: 6. Prerequisite(s): QUIM-3161. Corequisite(s): QUIM-3014. Introduction to general concepts of Organic Chemistry. Study of biochemical principles of the cellular functioning for sciences applied to health. *Note: Three lecture hours and three laboratory hours per week.*

QUIM-3165. POLYMERS CHEMISTRY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3032. Corequisite(s): None. Thermodynamic, kinetics, and stereochemistry aspects of macromolecules and their effects on the physical and chemical properties of these. The course also includes different aspects of polymers technology. Integrates laboratory experiences of synthesis and characterization of polymers.

QUIM-4000. INORGANIC CHEMISTRY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3002. Corequisite(s): None. Discussion of modern inorganic chemistry: theory of covalent bond, study of solid state, and the chemistry of solutions. Emphasizes the study of the coordination of compounds, their structures, bonds, stability, and mechanisms of reaction and considers experimental methods used to study the structure and bonding of inorganic compounds.

QUIM-4015 INSTRUMENTAL ANALYSIS. Credits: 4. Lecture hours per week: 9. Prerequisite(s): QUIM-3025, QUIM-3026. Corequisite(s): QUIM-4016. This is an undergraduate course of Instrumental Analysis designed to provide advanced level students with theoretical and practical knowledge of the instruments used in chemical analysis. Includes topics related to the most recent advances in the analytical instrumentation field, and covers the following areas: spectroscopy, electrochemistry, and chromatography. The class emphasizes the fundamental chemical and physical theory of instruments operation, which includes interpretation of the data obtained when using them. *Note: Three lecture hours and 6 practice hours per week.*

QUIM-4016. LABORATORY OF INSTRUMENTAL ANALYSIS. Credits: 0. Laboratory hours per week: 6. Prerequisite(s): QUIM-3025, QUIM-3026. Corequisite(s): QUIM-4015. This laboratory complements the course Instrumental Analysis. The laboratory work is organized in a way that the student can operate almost independently of the assigned instruments. Performs chemical analysis of commercial samples that expose the student to the practice application of Instrumental Analysis in the Industry through the application of spectroscopic, electrochemical, and chromatographic techniques.

QUIM-4035. INTERMEDIATE ORGANIC CHEMISTRY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3032, QUIM-3034. Corequisite(s): QUIM-4036. This is an intermediate course and is designed for students in the Major of Chemistry who would like to deepen their knowledge in organic synthesis. Requires that the student keeps up to date the assigned study material and excellent attendance to class. The topics to be covered are basic methods for carbon-carbon bonding formation, theory and strategies of molecular synthesis, and the concepts of pyrophoric reactions. Identification of structure by modern spectroscopic methods.

QUIM-4036. LABORATORY OF INTERMEDIATE ORGANIC CHEMISTRY. Credits: 1. Lecture hours per week: 4. Prerequisite(s): QUIM-3032. Corequisite(s): QUIM-4035.

Chemical principles related to the formation of carbon-carbon bonds, regiospecific and enantiospecific reactions. Emphasis will be given to the use of instrumentation for isolation, purifying, and identifying organic compounds. The correlation of spectral and physical data in structure confirmation will be a fundamental application of knowledge and skills acquired from other courses.

QUIM-4041. PHYSICAL CHEMIMSTRY I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3025, MATE-3062, FISI-3012. Corequisite(s): QUIM-4051. Introductory course of undergraduate Physical Chemistry that studies the fundamental laws governing the behavior of gases, liquids, and solids. Also, studies the thermodynamic and physicochemical properties of these systems, the chemical equilibrium, electrochemical properties of dissolutions, rule of phases and colligative properties. The main emphasis is in the development and applications of thermodynamic laws and chemical equilibrium.

QUIM-4042. PHYSICAL CHEMISTRY II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-4041, QUIM-4051. Corequisite(s): QUIM-4052. Systematic study of the kinetics theory model for an ideal gas, the distribution functions, and the analysis of complex reactions' kinetic data. The equations of Arrhenius and Eyring are studied for the speed constant dependency with temperature. In addition, discusses the postulates of quantum mechanics, Schrodinger equation, quantic numbers, harmonic oscillator, vibrational spectrum of diatomic molecules, rigid rotor, rotational spectrum of diatomic molecules, statistical mechanics, and partition functions.

QUIM-4047. NANOSCIENCE AND NANOTECHNOLOGY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3025. Corequisite(s): None. Introduction to nanoscience and nanotechnology concepts. Study of fullerenes, carbon nanotubes, self-assembled nanoparticles of metal protected by monolayers, nanosensors, nanobiology, nanomedicines and medicinal nanomachines. The impact of nanotechnology, including the development of technologies to clean the environment, molecular medicine, and development of new materials and electronic devices will be analyzed.

QUIM-4048. QUALITY ASSURANCE, COMPLIANCE, AND MANUFACTURE. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3025. Corequisite(s): None. This course prepares students of sciences to work in the areas of regulatory agencies of the state and federal government, international agencies, compliance audit companies, pharmaceutical industries, food, medical devices, and biotechnology. Emphasizes state, federal, and international regulations, in best practices to guarantee quality and compliance on the pharmaceutical manufacture and packing operations, and in biotechnology operations.

QUIM-4049. MEDICINAL CHEMISTRY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3032, BIOL-3012. Corequisite(s): None. Study of the synthesis and structure of drugs, the medication mechanism of action, and drug metabolism. The following medicinal classes are discussed: antimicrobial agents, antivirals, anticancer, medicinal, cardiovascular, diuretics, medicines for the autonomic nervous system and the nervous system, and anti-inflammatory drugs (steroids and non-steroids).

QUIM-4051. LABORATORY OF PHYSICAL CHEMISTRY I. Credits: 2. Laboratory hours per week: 5. Prerequisite(s): QUIM-3025, FISI-3012. Corequisite(s): QUIM-4041. Experiments of thermodynamics, chemical equilibrium, electrochemistry, viscosity, and phase diagrams. Discusses the theory and corresponding methods for each experiment.

QUIM-4052. LABORATORY OF PHYSICAL CHEMISTRY II. Credits: 2. Laboratory hours per week: 5. Prerequisite(s): QUIM-4051, QUIM-4041. Corequisite(s): QUIM-4042. Experiments of chemical kinetics, molecular kinetics, quantic mechanics, and spectroscopy. Discusses the theory and corresponding methods for each experiment.

QUIM-4053. SUPERVISED PRACTICE IN THE INDUSTRY. Credits: 2. Lecture hours per week: 0. Prerequisite(s): QUIM-3025 or TEQU-2001, QUIM-3032 or TEQU-2003, QUIM-3026 or TEQU-2002. Corequisite(s): None. Practice work with a minimum of 90 hours of contact, carried out in a government or industry laboratory in which the student will get familiarized with the techniques, chemical methods, and discipline used in such facilities.

QUIM-4055. BIOCHEMISTRY. Credits: 3. Lecture hours per week: 3 Prerequisite(s): QUIM-3032, BIOL-3012. Corequisite(s): None. Study of the structure and function of molecules vital for life, such as proteins, lipids, carbohydrates, and nucleic acids. Discusses some of the experimental techniques to isolate and purify these biomolecules and their application in biochemical research. Also, studies the structure and function of biological membranes, enzymatic kinetics, carbohydrates metabolism, lipids, and nucleic acids, as well as some aspects of molecular biology.

QUIM-4056. LABORATORY OF BIOCHEMISTRY. Credits: 1. Laboratory hours per week: 4. Prerequisite(s): QUIM-3032, FISI-3012, BIOL-3012. Corequisite(s): QUIM-4055. Laboratory that includes experiences related with the material studied in the course of Biochemistry. Develops practical experiences to help understand the structure and function of the macromolecules within the cell. The laboratory uses individualized teaching to develop in the student specific skills in the area of study. Some of the techniques included are ion exchange chromatography, dialysis, ultrafiltration, and electrophoresis.

QUIM-4086. UNDERGRADUATE RESEARCH I. Credits: 2. Lecture hours per week: 8. Prerequisite(s): QUIM-3025, QUIM-3032. Corequisite(s): None. Supervised research on a topic related to any of the fundamental areas of pure or applied chemistry. The course requires a minimum of 8 hours per week of experimental and bibliographical research work in an assigned project. These hours are carried out by agreement between the professor and the student. To enroll in this course, the student must have an academic index of 2.5 or more and have the authorization of the professor and the department's director.

QUIM-4087. UNDERGRADUATE RESEARCH II. Credits: 2. Lecture hours per week: 8. Prerequisite(s): QUIM-3025, QUIM-3032, QUIM-4086. Corequisite(s): None. Supervised research on a topic related to any of the fundamental areas of pure or applied chemistry. The course requires a minimum of 8 hours per week of experimental and bibliographical research work in an assigned project. These hours are carried out by agreement between the professor and the student. To enroll in this course, the student must have an academic index of 2.5 or more and have the authorization of the professor and the department's director.

QUIM-4088. INVESTIGACIÓN SUBGRADUADA III. Credits: 2. Lecture hours per week: 8. Prerequisite(s): QUIM-3025, QUIM-3031, QUIM-4087. Corequisite(s): None. Supervised research on a topic related to any of the fundamental areas of pure or applied chemistry. The course requires a minimum of 8 hours per week of experimental and bibliographical research work in an assigned project. These hours are carried out by agreement between the professor and the student. To enroll in this course, the student must have an academic index of 2.5 or more and have the authorization of the professor and the department's director.

QUIM-4089. INVESTIGACIÓN SUBGRADUADA IV. Credits: 2. Lecture hours per week: 8. Prerequisite(s): QUIM-3025, QUIM-3031, QUIM-4088. Corequisite(s): None. Supervised research on a topic related to any of the fundamental areas of pure or applied chemistry. The course requires a minimum of 8 hours per week of experimental and bibliographical research work in an assigned project. These hours are carried out by agreement between the professor and the student. To enroll in this course, the student must have an academic index of 2.5 or more and have the authorization of the professor and the department's director.

QUIM-4169. WATER TREATMENT. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3025. Corequisite(s): None. Study of the criteria used in determining the water quality and the characteristics of the sewage. Discussion of operations and processes used on filtration plants and on sewage treatment plants.

QUIM-4175. ENVIRONMENTAL CHEMISTRY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3025. Corequisite(s): QUIM-4176. Study of the chemical phenomena occurring in the environment, with emphasis on those of Puerto Rico; study of the sources, reactions, transport, effects, and destination of the chemical species present in the waters, soils, and atmosphere. Includes basic concepts of environmental biochemistry and chemical toxicology. Reference is made to the island laws and regulations for air, soil, and waters of the Environmental Quality Board, Health Department, and federals.

QUIM-4176. LABORATORY OF ENVIRONMENTAL CHEMISTRY. Credits: 1. Laboratory hours per week: 4. Prerequisite(s): QUIM-3025. Corequisite(s): QUIM-4175. Planning and execution of field sampling on superficial waters, air, and soils. Writing and interpreting of environmental evaluation reports on each of the three spheres (hydrosphere, atmosphere, lithosphere), includes the field analyses results and measurements of environmental basic parameters, in addition to the sampling analysis performed in the laboratory. Uses systems of sampling and continuous analysis. Organic and metal analyses are made with separation and modern instrumentation techniques, as well as chemical analyses with traditional techniques following recommendations of the "American Standard for Testing and Materials (ASTM)".

QUIM-4181. TOPICS OF INDUSTRIAL CHEMISTRY I. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3032. Corequisite(s): None. Study of topics relevant to the chemical industry, among others: quality engineering, pharmaceutical operations, treatment of waters, environmental regulations, regulations on health and occupational safety, air contamination, handling and disposal of solid waste, validation, and laws that regulate the exercise of Chemistry.

QUIM-4182. TOPICS OF INDUSTRIAL CHEMISTRY II. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3032, QUIM-4181. Corequisite(s): None. Study of topics relevant to the chemical industry, among others: quality engineering, pharmaceutical operations, treatment of waters, environmental regulations, regulations on health and occupational safety, air contamination, handling and disposal of solid waste, validation, and laws that regulate the exercise of Chemistry.

QUIM-4205. FOTOCHEMISSTRY. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3032. Corequisite(s): MATE-3061. Study of the fundamental principles, methods, and industrial applications of the conversion of electromagnetic energy to chemical energy. Discusses the basic concepts of excited state, theory of colors, photo reactivity, photo kinetics, rules of

selection, and singlet oxygen. Also, discusses the photoreactions of several organic groups.

QUIM. 4305. INTRODUCTION TO FOOD ENGINEERING. Credits: 3. Lecture hours per week: 3. Prerequisite(s): QUIM-3032, FISI-3012, MATE-3072, MATE-3062. Corequisite(s): None. Study of engineering concepts and unit operations uses in food processing. The principles related to the flow of fluids, generation and transfer of heat, thermal processing of foods, freezing, evaporation, drying, and aseptic processing and packing.

TEQU-1001 INTEGRATED CHEMISTRY I. Credits: 5. Lecture hours per week: 9. Prerequisite(s): None. Corequisite(s): TEQU-1002. Laboratory rules of safety and substance handling. Measures determined and undetermined errors, propagation of properties: density, boiling points, condensation, fusion, and freezing. Separation of mixtures by chromatography of paper, gas, and HPLC. Phase changes and diagrams. Solutions: preparations and calculations of concentrations. Interaction of matter with electromagnetic energy, collection and interpretation of specters UV, VIS, IR. Calibration curves preparation, workshop in a graphics computer program. Properties of gases and kinetic-molecular theory. *Note: Three lecture hours and six laboratory hours per week.*

TEQU-1002. LABORATORY OF INTEGRATED CHEMISTRY I. Credits: 0. Laboratory hours per week: 6. Prerequisite(s): None. Corequisite(s): TEQU-1001. This laboratory complements the course TEQU-1001. Includes the development of skills in the use of volumetric equipment and in the operation of separation and identification instruments (some of them are controlled by computers) as chromatographs of gas and of HPLC; as well as the UV-VIS spectrophotometer. Emphasizes safety measures, adequate handling of substances, preparation of graphics with computer programs, and writing of laboratory reports. Include experiments to determine the freezing point by cryoscopy and fusion point of pure and mixed substances.

TEQU-1003. INTEGRATED CHEMISTRY II. Credits: 5. Lecture hours per week: 9. Prerequisite(s): TEQU-1001, TEQU-1002. Corequisite(s): TEQU-1004. Atomic structure: development of atomic models that emphasize the quantic mechanics' model: quantic numbers, orbitals, Aufbau, electronic configurations, graphic representation of probability. Theories of chemical bond: diagrams of energy, tridimensional representations, Lewis diagrams, formal charge, resonant structures, electronegativity, molecular geometry, and polarity. Chemical reactions, stoichiometry, performance percent, purity percent. Analysis of composition: weight percent, volume percent. Chemical equilibrium, which emphasizes the aqueous equilibrium: calculations of Ph, pOH, [H30+], [OH-]. Redox reactions, balance of equations by the ion-electron method. Calorimetry. *Note: Three lecture hours and six laboratory hours per week.*

TEQU-1004. LABORATORY OF INTEGRATED CHEMISTRY II. Credits: 0. Laboratory hours per week: 6. Prerequisite(s): TEQU-1001, TEQU-1002. Corequisite(s): TEQU-1003. This laboratory complements the class TEQU-1003. Includes experiments of quantitative analysis of metals by spectrophotometry of atomic absorption, of products by spectrophotometry of visible region, of calorimetry, and kinetics which determines the order of reactants and the reaction constant with graphics. Emphasizes the development of skills in the operation and usage of analytical instruments, some of them controlled by computers.

TEQU-1012. CHEMICAL TECHNOLOGY SEMINAR. Credits: 1. Lecture hours per week: 1. Prerequisite(s): TEQU-1003. Corequisite(s): None. Discusses topics of Chemical Technology and of the chemical industry of Puerto Rico. Training in the preparation of scientific monographs and oral presentations with visual resources.

TEQU-2001. INTEGRATED CHEMISTRY III. Credits: 5. Lecture hours per week: 9. Prerequisite(s): TEQU-1003 and TEQU-1004. Corequisite(s): TEQU-2002. The course of Chemical Technology 2001/2002 is the continuation of the course TEQU-1003 and TEQU-1004. These courses are of a special nature because the theory and practice of chemistry are merged. This course gives emphasis to the study and training in qualitative and quantitative methods of analysis, such as volumetric, gravimetric, electrochemical, and spectrophotometric analysis. Also, highlights the fundamental chemical and physical theory of instruments operation, which includes the interpretation of the data obtained from it. *Note: Three lecture hours and six laboratory hours per week.*

TEQU-2002. LABORATORY OF INTEGRATED CHEMISTRY III. Credits: 0. Laboratory hours per week: 6. Prerequisite(s): TEQU-1003, TEQU-1004. Corequisite(s): TEQU-2001. Develops adequate techniques of laboratory and correct operation of equipment and instruments through the practice of qualitative and quantitative methods of gravimetric, volumetric, electrochemical, and spectrophotometric analyses.

TEQU-2003. INTEGRATED CHEMISTRY IV. Credits: 5. Lecture hours per week: 9. Prerequisite(s): TEQU-2001, TEQU-2002. Corequisite(s): TEQU-2004. Introduces the student to concepts of structure and reactivity of the organic compounds from the main families. Special emphasis is given to spectroscopy methods to learn and identify organic, environmental, and industrial compounds. Theory of chromatography of thin layer, gases and high-pressure liquid, infrared spectroscopy, organic functional groups, reactivity and reaction mechanisms of organic molecules, kinetics, and chemical equilibrium. *Note: Three lecture hours and six laboratory hours per week.*

TEQU-2004. LABORATORY OF INTEGRATED CHEMISTRY IV. Credits: 0. Laboratory hours per week: 6. Prerequisite(s): TEQU-2001, TEQU-2002. Corequisite(s): TEQU-2003. Experiments on organic synthesis and systematic identification of organic compounds. Develops the skills for separation and purification of organic compounds that uses techniques of distillation, recrystallization, extraction, and chromatography of thin layer, of gases, and of high-pressure liquid. Identifies organic functional groups which use infrared spectroscopy.

TEQU-2005. INTRODUCTION TO COMPUTERS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Exposition and practice of computational methods for access, collection, reproduction, relation, graphic representation, and manipulation of information and simulation of physical events. The student will be introduced to a programming environment, a data electronic sheet, documents processor, database system, and several systems for accessing information through networks.

TEQU-2011. CHEMICAL PROCESSES. Credits: 4. Lecture hours per week: 3. Prerequisite(s): FISI-1031, TEQU-1003, TEQU-1004. Corequisite(s): TEQU-2012. Study of the chemical engineering fundaments with emphasis in the processes involved in manufacture and chemical processes. Includes balance of matter and energy, principles that govern the flow of fluid and heat. Study and discussion of the evaporation, distillation, and extraction processes. Drying, sterilization, filtration, sedimentation, separation by membranes, and other processes of materials mechanical separation.

TEQU-2012. LABORATORY OF CHEMICAL PROCESSES. Credits: 0. Laboratory hours per week: 6. Prerequisite(s): TEQU-1003, TEQU-1004, FISI-1031. Corequisite(s): TEQU-2011, FISI-1032. Analysis and discussion of industrial processes. Fundaments applications of matter and energy balance, of principles that govern the flow of fluids and heat. During the first semester, the corresponding laboratory periods are used completely to discuss problems. During the second semester, this time is used to conduct laboratories and make visits to industries.

TEQU-2013. UNIT OPERATIONS. Credits: 4. Lecture hours per week: 3. Prerequisite(s): TEQU-2011, TEQU-2012. Corequisite(s): TEQU-2014. Study and discussion of the processes of evaporation, distillation, extraction, sedimentation, and other processes of mechanical separation.

TEQU-2014. LABORATORY OF UNIT OPERATIONS. Credits: 0. Laboratory hours per week: 3. Prerequisite(s): TEQU-2011, TEQU-2012. Corequisite(s): TEQU-2013. Analysis, discussion, and experimental studies of processes separation: distillation, extraction, absorption, drying, evaporation, inverse osmosis, etc.

FACULTY

ÁLAPE BENÍTEZ, FABIO, *Assistant Professor,*
PhD, 2004, University of Puerto Rico, Puerto Rico.

BARLETTA BONANNO, GABRIEL L. *Full Professor*,
PhD, 1993, Rutgers University, United States.

CASTILLO RAMÍREZ, JORGE. *Full Professor*,
MS, 1992, University of de Texas, El Paso, United States.

FAZOLI, EZIO. *Associate Professor*,
PhD, 2005, Politecnico Di Milano, Italy.

GARCÍA RUIZ, CARMELO. *Full Professor,*
PhD, 1982, University Tech. Hochschule Carl Schorlemmer, Germany.

MALAVÉ SANABRIA, TANIA. *Associate Professor*,
PhD, 2002, Purdue University, United States.
PD, 2004, Baylor College of Medicine, United States.
PD, 2006, UT MD Anderson Cancer Center, United States.

ORTIZ MARCIALES, MARGARITA. *Full Professor,*
PhD, 1979, University of Alabama, United States.

OYOLA MARTÍNEZ, ROLANDO. *Full Professor,*
PhD, 2001, University of Puerto Rico, Puerto Rico.
PD, 2002, Penn State University, United States.

RIVERA CLAUDIO, MIRNA L. *Full Professor,*
PhD, 1987, University of Puerto Rico, Puerto Rico.

RODRÍGUEZ VÉLEZ, ILEANA I. *Associate Professor,*
PhD, 2007, University of Puerto Rico, Puerto Rico.

TREMONT, ROLANDO J. *Full Professor,*
PhD, 2003, University of Puerto Rico, Puerto Rico.

ZAYAS CRUZ, JORGE I. *Associate Professor,*
PhD, 1987, The Ohio State University, United States.

OTHER PROGRAMS

Department of Counseling Services, Psychology and Social Work

Website: https://www.upr.edu/humacao/dscpts/
Phone: 787-850-9361

History and Objectives

The Department of Counseling, Psychology and Social Work Services (from now on the Department) is composed of an interdisciplinary team of mental health and behavior professionals, among them professional counselors, clinical psychologists, and social workers. Also, has administrative personnel who supports the Department endeavors.

Counseling, guidance, and therapy services are offered in the personal, family, educational, and occupational areas for the student population of the University of Puerto Rico in Humacao (UPR-H). These interventions may be individual or group-based and are provided free of charge, confidentially, and on a voluntary basis.

As an integral part of its services, the Department makes referrals and provides consultations to specialists in public and private agencies. Likewise, it offers consultation to university staff who request it. Additionally, the Department's professionals intervene in individual or group crisis situations that may affect students' well-being and academic performance. The Department's faculty also facilitates the course Workshop on Integration to University Life (INTD 3005) and organizes educational activities that promote comprehensive mental health.

Additionally, attached to the Department is the Occupational and Informational Resources Center (CORI), where one of the Department's counselors provides vocational counseling and guidance on topics related to occupations, the labor market, postsecondary institutions, and graduate admissions processes, among others.

The Department actively responds to the needs of the university community, promoting a favorable environment for teaching, learning, and the comprehensive development of students. It works closely with non-teaching staff, faculty, and administration to improve quality of life and the educational environment within the institution.

The Department holds current accreditation from the *International Association of Counseling Services (IACS)*, which was first obtained in 2008 and has been renewed in subsequent years, reaffirming its commitment to quality and excellence in the services offered. Its primary focus is to support students in managing their emotional and mental health challenges, as well as achieving their personal, academic, and occupational goals, thereby promoting their well-being and academic success.

COURSE DESCRIPTIONS

INTD-3005. INTEGRATION TO UNIVERSITY LIFE WORKSHOP. Credits: 2. Lecture hours per week: 2. Prerequisite(s): None. Corequisite(s): None. The course is designed to facilitate first-year students to obtain the skills necessary to perform effectively in their university studies. The course develops like a workshop where theory and practice are combined with several exercises of introspection. Contains three units: Life skills, The adventure of success, and Integrating myself into university. Discusses topics like self-knowledge and self-esteem; skills of assertive communication and effective study, handling of situations in couples, family, with professor; socialization by gender, personal and occupational decision-making; usage of university resources, among others. *Note: Requires to be a new admission student of the bachelor programs.*

FACULTTY

ALICEA CAMPOS, JULIA. *Social Worker, M.A.,* 2009, University of Puerto Rico, Puerto Rico.

ASTACIO OLMEDA, GRACE M. *Pshycologist, Ph.D.,* 1996, University of Carlos Albizu, Puerto Rico.

FIGUEROA ROSA, FLOR. *Professional Counselor, Ed.D.*, 2024, University of Puerto Rico, Puerto Rico.

MARTÍNEZ TORRES, LUZ N. *Professional Counselor, Ed.D.,* 2013, Metropolitan University at Cupey, Puerto Rico.

MIRANDA ROSARIO, SOLANGEL. *Professional Counselor, Ed.D.,* 2020, University of Puerto Rico, Río Piedras, Puerto Rico.

PÉREZ COLÓN, ROLANDO. *Profesional Counselor, M.A.,* 1995, Interamerican University, Puerto Rico.

RODRÍGUEZ PÉREZ, MAGALY. *Counselor, Ed.D.,* 2017, Interamerican University, Puerto Rico.

Academic Honors Program

Website: http://www.upr.edu/humacao/programa-academico-honor/
e-mail: honor.uprh@upr.edu
Phone: 787-850-9356

History and Objectives

The Academic Honors Program (PAH, by its Spanish acronym) from the University of Puerto Rico at Humacao (UPRH) was established in 1989 with a main objective; to provide talented students a learning environment rich in practical and intellectual experiences additional to those offered by academic curriculums. Another objective is to complement and enrich, within an interdisciplinary framework, the actual curriculum of students whose desires are to pursue graduate studies. These experiences will stimulate the development of the students' potentialities, qualities, and skills, will add to their personal growth, and will potentiate their growth as members of a university body.

The Program enrolls students from all disciplines of the UPRH who are prepared to comply with the requirements of it and with courses equivalent to 11 credits: Multidisciplinary Topics (3 credits); Interdisciplinary Seminar of research (3 credits); Independent Study (2 credits); and BA Thesis of PAH (3 credits). It is required for participants of the Program to take a third language course to reinforce their cognitive benefits and to widen cultural knowledge. The Academic Honors Program allows students to obtain co-curricular experiences of intellectual and professional benefit, as excursions, workshops, trips, expositions, and conferences, among others. The honor's students have some special privileges: priority on the processes of registration and enrollment; use of the library's Journals Hall and Puerto Rican Collection Hall resources at extended hours; and use of computers in the area of PAH.

The Academic Honors Program of the UPR at Humacao has the prestige to be member of the *University Association of Puerto Rico's Honors Programs* (AUPH, by its Spanish acronym).

COURSE DESCRIPTION

PREH-3990. MULTIDISCIPLINARY TOPICS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. This course pretends to offer students several activities, such as workshops, modern language courses, seminars, conferences, guided trips or excursions, concerts and film series, among others, to enrich their academic life and expose them to an integral education. The purpose of this course is to provide students with experiences that regular academic courses from their curriculum cannot provide.

PREH-4676. INTERDISCIPLINARY SEMINAR OF RESEARCH. Credits: 3. Lecture hours per week: 3. Prerequisite(s): None. Corequisite(s): None. Defines research and studies it from the qualitative, quantitative, mixed, scientific, and social perspectives, among others. Students learn to write a research proposal and the steps leading to a well based study. Also, the course emphasizes ethical aspects of research; and, finally, students will prepare an oral presentation of it.

PREH-4705. HONORS PROGRAM INDEPENDENT STUDY. Credits: 2. Lecture hours per week: 2. Prerequisite: PREH-4676. Corequisite(s): None. In this course, students will perform research on their area of specialty or on an area of interest. Will use the research logical procedure in the selection and description of the topic or problem to investigate and will apply the adequate research method. Also, the course offers the opportunity to practice previously acquired skills from the course Interdisciplinary Seminar of Research.

PREH-4985. HONORS PROGRAM UNDERGRADUATE THESIS. Credits: 3. Lecture hours per week: 3. Prerequisite(s): PREH-4705, PREH-4676. Corequisite(s): None. The course will offer students the opportunity to write an undergraduate thesis in a topic or problem of their area of specialty or particular interest, in which they will practice the research skills acquired in the course of Interdisciplinary Seminar of Research and in the Independent Study. Also, students will review and edit the presented chapters in the proposal and in the Independent Study. Then, will present the conclusions and implications of their research. Will submit their undergraduate thesis work, will review and edit it; and finally, will give an oral presentation of it.